FLIGHT

The AIRCRAFT ENGINEER & AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 615 (No. 41, Vol. XII.) OCTOBER 7, 1920 [Weekly, Price 6d Post free, 7d.

Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2

Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free:
United Kingdom .. 30s. 4d. Abroad 33s. 0d.*

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates

* *European subscriptions must be remitted in British currency*

CONTENTS

	PAGE
Editorial Comment	
The Finish of the Gordon-Bennett Race	1051
Speed a Necessity	1052
The Air Conference	1052
The Air Ministry Trials	1052
Cheaper Air Transport	1054
A Remarkable Business Journey	1054
Air Ministry Competitions	1054
The Gordon-Bennett Race	1055
Royal Aero Club Official Notices	1061
Notices to Airmen	1062
A Fokker Raid on London	1064
Royal Aeronautical Society Official Notices	1066
Personals	1066
Airisms from the Four Winds	1067
The Royal Air Force	1068
Models	1069
Sidewinds	1070
Company Matters	1070

DIARY OF FORTHCOMING EVENTS.

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

Oct. 8, 9, 10 A.C.F. Meeting at Buc

Oct. 12, 13 and 14 Air Ministry Conference, Council Chamber, Guildhall

Oct. 21 ... Lecture, "A Comparison of the Flying Qualities of Single and Twin-Engined Aeroplanes," by Squadron-Leader R. M. Hill, at the Royal Society of Arts, John Street, Adelphi

Oct. 23 ... Gordon-Bennett Balloon Race, Indianapolis, U.S.A.

Oct. or Nov. U.S. National Aeroplane Race (New York to San Francisco)

Nov. 1 ... First Open Competition for R.A.F. Boy Mechanics

EDITORIAL COMMENT



L'ECOINTE'S victory at Etampes on September 28, being the third win by a French pilot, gives to France the right of retaining permanently the Gordon-Bennett Aviation Cup which has now been so keenly contested for a number of years, and the question arises what event is to take its place. On the Etampes aerodrome at Villesauvage, on the day of the race, it was rumoured that a French sportsman had already been found who was willing to present a cup to take the place of the "G.B." At present secrecy is being maintained as to his identity, but already there is considerable controversy in regard to the form which the rules for "la Coupe X" should take. In the meantime, Mr. Cox, who financed the "Texas Wildcat," has, it is announced, offered to put up a 10,000-dollar trophy. In aviation circles opinions appear to be divided into two main groups. One section maintains that speed for speed's sake has now been carried as far as is useful, and that it is time some other provision is made which will produce not simply racing freaks, but machines which will be of commercial value. The other view is that a pure speed race is justified. For military aviation, at any rate, the fast machine will always be wanted, and hence an international race in which speed is the only consideration is, it is claimed, justified.

The Finish of the Gordon-Bennett Race

Personally we are inclined to agree with the latter point of view, for the following reasons:—The imposition of a certain minimum speed, which has been suggested in order to produce machines of commercial value, might make for greater safety in the actual race. It should be remembered, however, that what constitutes a safe landing speed for one particular machine and pilot may be a dangerous landing speed for another machine and another pilot. The accident to the "Texas Wildcat" at Etampes was not so much a result of the high landing speed of the machine as it was caused by faulty design. The wheels of this machine were not provided with any shock-absorbers, consequently when they touched at a very high speed

they collapsed and the machine naturally crashed. We think that the question of what is or is not a safe landing speed may safely be left to the judgment of individual constructors and pilots.

There is little doubt that we have now approached within a comparatively few miles per hour of what is the attainable maximum speed of the aeroplane as we know it today. If, therefore, the competition which is to take the place of the Gordon-Bennett is kept as a speed race pure and simple, it would appear that, if still greater speeds are to be attained, the whole problem must be attacked on somewhat different lines. Thus by retaining an international annual speed contest it is likely that, instead of producing mere freak speed machines, designers may be forced to adopt other means for improving upon the speed of the aeroplane as at present designed, and thus discover means of improving upon the speed *range*. One example illustrating this was furnished by the little Dayton-Wright cantilever monoplane, in which an attempt was made to obtain a good maximum speed by flattening out the wing section and withdrawing the undercarriage into the *fuselage*. We do not claim that this particular machine would have stood a very good chance in the race, nor that the present arrangement of the design is necessarily perfect, but we do think that it represents a step in the right direction, and if the race of next year is made a speed race, there is little doubt that some such means will have to be adopted in order to improve, to any great extent at any rate, on the speeds established by this year's Gordon-Bennett machines.

Speed a Necessity

The general conclusion to be drawn seems to be, as we have said, in favour of the perpetuation of a speed race. After all, it is to speed we look for the success of aircraft as a commercial proposition, since it is mainly by virtue of their speed that they can hope to compete with the older forms of transport. If, then, speed were relegated to second place we should be in danger of encouraging a race of machines, which might very well be described as flopping weight lifters, with just enough flying speed to keep them out of trouble. Neither for military nor commercial use do we want these. On the other hand, by keeping speed in the foreground we do at least encourage the cultivation of the most valuable characteristic of all aircraft. The rest will come automatically, for the reason that mere speed freaks will not pay their constructors. It costs a great deal more than the prize is intrinsically worth to build a freak machine, while the commercial aviation firms and even the private individual who may elect to use the aeroplane instead of other modes of travel will not be deluded by mere racing success into the purchase of machines which are useless except for racing. That being so, the encouragement to speed will exercise a reaction on design which will be all to the good, since every designer and every constructor will be trying to evolve a machine which is at once the fastest in its class and the most utilitarian from the point of view of everyday use. We agree that there is something to be said for the other side, but when all is balanced up it certainly seems that the arguments are overwhelmingly on the side of those who favour the retention of the speed event in preference to changing over to a form of contest which, on the face of it, might encourage other almost equally valuable features, but which would, we are convinced, tend quite the other way.

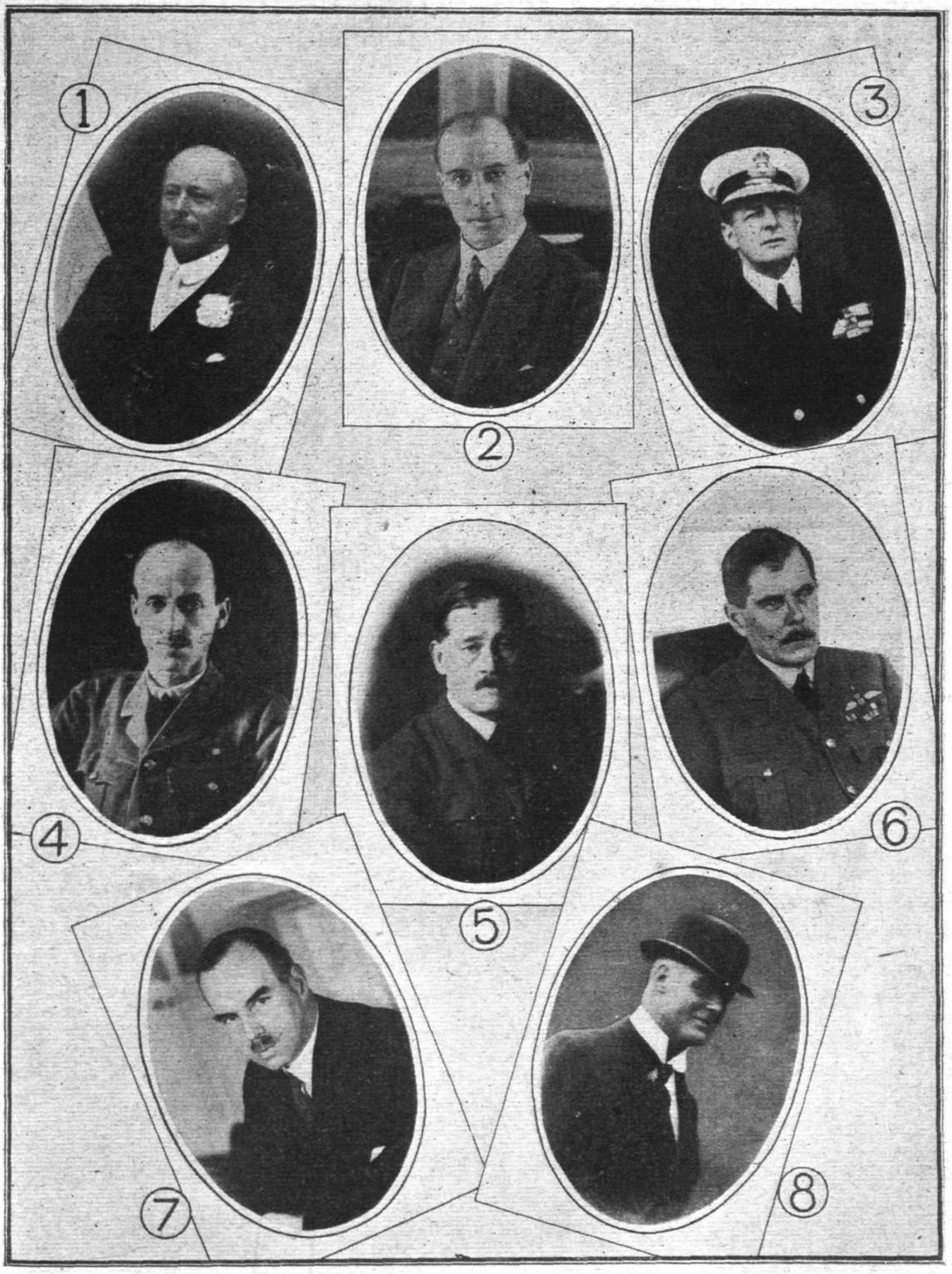
The Air Conference

We regard the Air Conference, which is to meet in the Guildhall next week, as being of such superlative importance to aviation that we feel we need make no apology for once again referring to it in these pages. The programme of the Conference covers every conceivable aspect of the whole movement—at least, those of any but the most minor importance. A great deal of its usefulness to aviation, however, will depend upon the value of the discussion which will arise out of the reading of the various papers and out of the public attention these will command. For these reasons we may perhaps be allowed to express the fervent hope that all those who have been favoured with an invitation from the Air Ministry to attend—and it may be remarked that these invitations have been issued with considerable discrimination—will make a point of attending, if only to create the atmosphere which is so essential to the success of such a Conference. The Conference can be productive of enormous good to the industry and to the whole cause of flying. On the other hand, it may be of no avail at all. Everything depends, as we have suggested, on the atmosphere created. If attendances are sparse and interest languid, it may well be thought by those to whom we look for due encouragement that those most concerned with the movement are apathetic to the point of no interest at all, in which case the results will inevitably be visited upon the movement as a whole. If, on the other hand, the atmosphere is one of keenness and enthusiasm the impression will be created that here is a virile movement, stunted it may be by want of the encouragement which has not been forthcoming, but one which nevertheless is very much alive and must be reckoned with as a real live force. If such conditions as these arise, then we are more than confident that the holding of the Conference will be the best thing that has happened for aviation during the whole of its history in this country.

The Air Ministry Trials

The official report on the results of the recent Air Ministry trials of commercial aeroplanes is at first sight a little disappointing. The judges' committee holds that the results of the competition show less radical advance in general design than had been anticipated, and that though very useful developments in detail design had been produced, which in themselves had justified the competition, the award of the full prizes originally specified is not warranted. Therefore, in Class (*a*) for large aeroplanes, the first prize is withheld and only the second and third allocated. In Class (*b*) for small aeroplanes, all the prizes are awarded. The report conveys that a further announcement will shortly be made regarding the results of the competition for "amphibians" (this has now been issued), followed in due course by a full technical report upon the whole of the competitions.

In thus withholding certain of the prizes the judges' committee are perfectly within their rights, under the regulations laid down by the Air Ministry for the conduct of the trials. It seems, however, in order to ask what degree of "radical advance" in general design the Air Ministry and the judges expected, and



THE AIR CONFERENCE AT THE GUILDHALL ON OCTOBER 12, 13, 14 : 1. Lord Montagu of Beaulieu, Chairman on Oct. 12 ; 2. Lord Weir of Eastwood, Chairman on Oct. 13 ; 3. Admiral-of-the-Fleet Earl Beatty, Chairman on Oct. 14 ; 4. Major-General Sir F. H. Sykes, Controller-General of Civil Aviation, reading a paper, "Civil Aviation and Air Services" ; 5. Air Vice-Marshal Sir E. L. Ellington, reading a paper, "The Present Position of Aircraft Research and Contemplated Developments" ; 6. Air-Marshal Sir H. M. Trenchard, Chief of the Air Staff, reading a paper, "The Broader Aspects of Service Aviation" ; 7. Mr. H. White Smith, Chairman of the S.B.A.C., reading a paper, "The Operation of Civil Aircraft in Relation to the Constructor" ; 8. Commander Sir Trevor Dawson, reading a paper, "The Commercial Airship: Its Operation and Construction."

by what standard of comparison were the trials judged? If the standard taken as a starting point was that of the latest developments brought about by the War, then it seems reasonably clear that no such radical advances as are indicated by the report could possibly have been expected. The big machine of today is in all its essentials the latest type of multi-engined bomber which was designed in 1918 for the carrying of the air war to Berlin. True, it has advanced in certain details, as is made clear by the report we are discussing, but in general design there has been neither time nor opportunity for that improvement which the Air Ministry, with something approaching undue optimism as we think, appears to have anticipated. We would even add that there has been little encouragement to the designer or the constructor to seek after such advance as is indicated, for the reason that the absence of any Government policy affecting the development of aviation, civil or military, and the indeterminate position of the industry, has exercised what we think we are justified in describing as a blighting influence over the whole movement. To our way of thinking, the surprising thing is that so much advance has been made in detail, although *pro rata* progress with war-time activity may not have been maintained.

The answers to the questions we have propounded may be forthcoming in the full technical report of the competitions, and we shall await the publication of this document with the more interest as a consequence. Let it be quite understood that we are not blaming the Air Ministry or the judges for withholding the full prize money. We are bound to recognise that the interval between the end of the War and the competitions was too short for there to have been any marked change in design. Apparently, the Air Ministry laid down a standard of progress which it hoped would be encouraged and attained as a consequence of the offer of the very substantial prizes set forth in its first announcement. The time has been too short to permit of that standard being attained, and that is all there is about it. Nevertheless, it would be of more than passing interest to know exactly what was expected, and why.

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Cheaper Air Transport

The Handley Page Co. has just announced another drop in the cost of transport by the London-Paris-Brussels air service. In future, goods are to be carried by this service at 1*s.* 3*d.* per lb. up to 100 lbs., and at 1*s.* per lb. over that weight. This is getiing the cost down to within quite measurable distance of the costs of transport of other than heavy goods by rail and steamer, with the added advantage of speed. Nor need we suppose that this is the end. Even now, with considerably over a year's experience to guide them, the air transport companies are still conducting a tentative and to some extent an experimental service. They have proved its safety and certainty, and the travelling public admits the proof by making an ever-increasing use of the facilities afforded. Air transport is now so much of an accomplished fact that it has become a commonplace, and the traveller who decides to make the journey across the Channel by air no longer first pays a visit to his lawyer to adjust his affairs and to make a last will and testament. He makes the journey as a matter of course, just as he would if he were going by the Folkestone-Boulogne rail and sea route.

But the services are, as we have said, tentative to some extent so far as concerns ultimate cost, because they have not so far been running long enough for such factors as depreciation of machines and plant to make their full effect felt. These figures are now becoming available and have been generally less than anticipations, so that the public and the business community are benefiting to the extent recently announced. Which is exceedingly satisfactory from all points of view.

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A Remarkable Business Journey

As showing the enormous value of the aeroplane in countries where communications are slow and spasmodic, a business trip recently undertaken by the London manager of the Anglo-South American Bank in visiting the branches of his institution in Uruguay and South Brazil is more than a little interesting. Briefly, he covered a distance of 625 miles in 6 hrs. 5 mins. actual flying time, against an average of five days by combined rail and sea routes. The whole business tour was completed in ten days, against over twenty days which would have been expended by taking the alternative modes of conveyance. The figures are eloquent of what the aeroplane is capable of in saving the valuable time of an important official of such a corporation as the bank in question, and we doubt not the progressive London manager, Mr. Kiek, is fully satisfied with the results of what was a pioneer business flight in that part of the world. It is said that the flight has attracted a great deal of attention in Brazil and has vastly improved the local prospects of aviation.

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AIR MINISTRY COMPETITIONS, 1920

The Official List of Awards

The Judges' Committee consider that the results of the Competitions for aeroplanes show collectively less radical advance in general design than had been anticipated, and that though very useful developments in detail design have been produced, which in themselves have justified the Competitions, the award of the full prizes originally specified is not warranted. The following sums have been awarded:—

(*a*) Large Aeroplane Class

FIRST PRIZE Not awarded

SECOND PRIZE—Messrs. Handley Page Transport, Ltd., H.P. W.8, with two 450 h.p. Napier engines £8,000

THIRD PRIZE—Messrs. Vickers, Ltd., Vickers Vimy Commercial, fitted with two 350 h.p. Rolls-Royce "Eagle 8" engines £4,000

(*b*) Small Aeroplane Class

FIRST PRIZE—Messrs. Westland Aircraft Works, Westland "6-seater," fitted with 450 h.p. Napier "Lion" engine £7,000

SECOND PRIZE—Messrs. Sopwith Aviation and Engineering Co., Ltd., Sopwith "Antelope" fitted with 180 h.p. Wolseley Hispano "Viper" engine £3,000

THIRD PRIZE—Messrs. Austin Motor Co., Ltd., Austin "Kestrel," fitted with 160 h.p. Beardmore engine £1,500

A further announcement will shortly be made regarding the results of the Competition for Seaplanes (Amphibians), followed in due course by a full technical report upon the whole of the Competitions.

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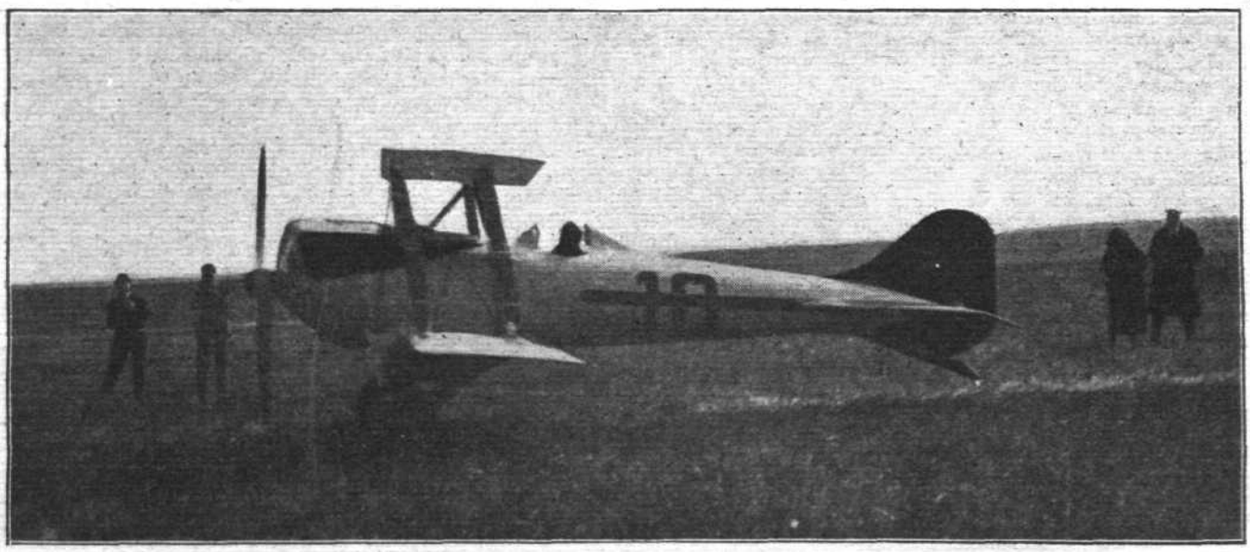
Gordon-Bennett 1920

The Cup Goes to France

LECOINTE has won the Gordon-Bennett. This result is not altogether unforeseen, and was perhaps generally anticipated. In spite of the phenominal speeds claimed by the American competitors, there was a tendency, in aviation circles at any rate, whatever may have been the case among the general public, not to take them too seriously. The extremely bad luck of the two British entrants robbed the race of most of its interest, and naturally we should have liked to see the Cup won by either Raynham or Tait-Cox. However, Lecointe is such a thoroughly good sportsman that no one begrudges him his victory; he had worked very hard to make as sure as is possible of victory. He had been over the course time after time, until he knew every inch of it. He was known to have a very fast machine in which stream lining had been carried to its maximum extent, and last, but not least, he had a good organisation behind him. As things turned out, there was nothing else within miles of him in the actual race, but even apart from this he would have been difficult to beat. His handling of the little Nieuport was simply superb, as may be illustrated by noting that on one occasion he was timed between crossing the line on the home stretch and recrossing it on the outward journey, the time taken in making the turn around the pylone occupying three seconds! It will thus be realised that he did not lose much time at the turning points. His speed around the course worked out at 168.5 m.p.h., although the actual speed of the machine was considerably in access of this figure, probably not very far short of 180 m.p.h. The wind, which was practically at right-angles to the course, would probably account for most of this difference, as well as a slight drop in power towards the end of the race.

It was a dull, misty morning at the Villesauvage aerodrome of Etampes when, at 7 a.m. on September 28 the competitors arrived from their various hotels at Etampes and Paris. The clouds were low and the visibility very poor, and the outlook was anything but promising. There was nothing for it but to wait; it would have been impossible for the competitors to find their way with any degree of certainty, and a speed-race does not leave much time for wandering around the country looking for landmarks. Consequently competitors and their friends retired to the hangars to look over the machines, or gathered in groups in the enclosures and discussed the chances of the day. As time wore on, motors began to arrive from Paris in a steady stream and soon the enclosures presented an animated spectacle. Among the visitors one noticed many old acquaintances: of French constructors may be mentioned Henry Farman, Louis Blériot, René Caudron, Delage and Bazaine of Nieuports, Herbemont, Robert Morane, Louis Breguet, and young Marcel Hanriot. One also noticed several old-timers such as Emile Dubonnet, de Lambert, Henry de la Vaulx, not to mention such famous pilots, some previous holders of the Cup, as Weymann, Prévost, Tabuteau, Chevillard, and Leblanc.

Britain was represented by members of the Royal Aero Club, and in and around Raynham's hangar officials were busy giving the only British "White Hope" final instructions. Col. McClean and Col. O'Gorman were ever on the alert, and seen conferring with the French and American officials, assisted by the indefatigable secretary, Commander H. E. Perrin. Toward midday, as there is still no signs of the weather improving, Col. McClean volunteers to fetch lunch for all, and is soon making for Etampes in his white Rolls-Royce. He returns with the great car nearly full, and the British contingent, numbering well over a score, sit down to an *al fresco* lunch outside the hangar. So far as one is able to discover, there is no British aircraft constructor present, the industry being represented by Mr. H. P. Folland of British Nieuports. Although debarred from flying in the race, Mr. Hawker is present, having motored out from Paris with his wife, in a beautiful six-cylindered Sunbeam. The only other firm which is represented is the Paris version of Wake-



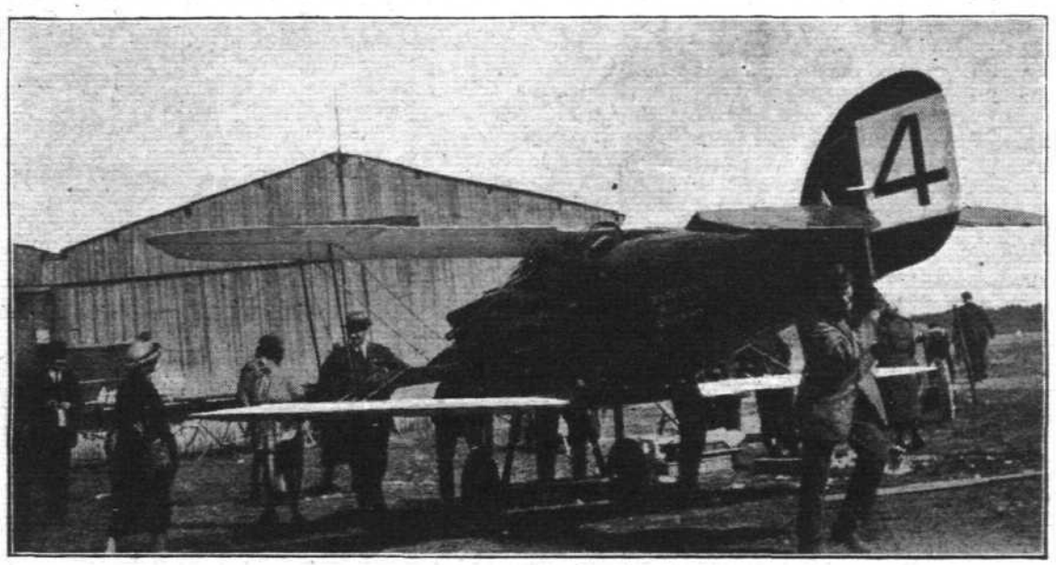
THE GORDON-BENNETT RACE: Sadi Lecointe on the Nieuport alighting after the race. Note the careful streamlining of this machine

fields, who are represented by Messrs. Woods-Mason and René Lapray. Tait-Cox, who is ruled out, owing to having failed to have his machine on the aerodrome on the morning before the race, is awaiting Mr. J. H. James, who is flying the machine over from Le Bourget. A machine is seen in the mist, which proves to be the British Nieuport. After making a few turns, during which it is seen that one of the tyres is dangling loose from the axle, James makes a perfect landing and brings the "Goshawk" to rest a few feet from the enclosures. We go out to meet him, and are informed that he damaged the tyre when making a landing in a small field a few miles from Villesauvage in order to get his bearings. Cruising about over unknown country on a misty day in a racing machine! Truly a marvellous performance. However, James does not appear to think it is anything out of the ordinary. He has made in all nine landings, several of which have been in small fields, since leaving Hendon, and is now getting so used to it that he expresses his confidence in being able to "put her down" almost anywhere.

Several of the machines are on the starting line, but until about 13 o'clock there does not appear to be any probability of them starting. The sun, which breaks through occasionally, is obscured again. However, just after 1 o'clock things seem to improve. There is "a certain liveliness" around the machines at the far end of the aerodrome, and at 1.25 No. 11, the Nieuport piloted by Kirch, comes racing toward us, gets unstuck, and cruises around for a few minutes. It really looks as if a start is to be made at last. Having got his engine warmed up, Kirch approaches the starting-line, and with a dip of his port wings by way of a salute, he is off. He is followed about 20 minutes later by Bernard de Romanet, on the Spad. Sadi Lecointe crosses the starting-line about 10 minutes past 2, and a few minutes later the little Dayton-Wright monoplane gets off. After making a circuit of the aerodrome, during which the wheels are raised and disappear into the *fuselage*, this machine crosses the starting-line and disappears in what appears to be a direction several degrees off the proper course. Someone suggests that the pilot has to turn off his course every time he wants to look ahead, as he can see nothing straight ahead, but only sideways out through the windows. At about 2.35 Major Schroeder comes rumbling along on the Verville-Packard. The engine has a lusty note, which seems to speak of high compression. The speed does not appear to be extraordinary, but one is under the impression that the engine is not running all-out. The Martinsyde "Semiquaver" is still in its shed. Raynham is in no hurry. By waiting till the evening he is more likely to get calm weather coupled with good visibility. Also the air will be cooler, which is an advantage, the radiator of the "Semiquaver" being on the small side.

In the meantime Kirch completes his first lap, which he has covered in 21 mins. 29 secs., which as a matter of fact proves to be the fastest time of the day. On returning after the second lap, he alights, and one learns that he has had trouble with his plugs, which, owing to overoiling, have sooted up. Kirch retires to his shed, naturally very "fed up." De Romanet, on the Spad, also returns after his first trip, and crosses the finishing line 22 mins. 52 secs. after starting. He is off again on his second lap, and in the meantime the Dayton-Wright is seen approaching the aerodrome, looking, with its wheels tucked away, more like a small monoplane flying-boat. As she approaches the aerodrome, the wheels begin to emerge, for all the world like the legs of a bird just before it alights. Rinehart informs us that he was unable to turn to the left. An examination shows that the port rudder cable is broken. In spite of this he managed to make a good landing, but to continue in the race was obviously impossible. Soon afterward the Verville-Packard heaves in sight, its engine evidently being run throttled down. It later appears that when Major Schroeder attempted to run the engine all-out she overheated, and flames poured out of the exhaust pipes. Under the circumstances the danger of fire was too great, and the pilot did the only wise thing. It would appear that the danger of fire was suspected, for during a test run of the engine one noticed quite a circle of fire-extinguishers around the machine. The compression ratio of the Packard is, one understands, over 6 to 1, so that unless the machine were flying very high there would probably be a great tendency to overheating.

On returning from his second lap, de Romanet alighted, and it looked as if Lecointe was to be left in solitary state, but after making some adjustment to his oiling system, de Romanet took off again, although by then the delay was such that unless something happened to Sadi there was little prospect of winning. Good little sportsman that he is, de Romanet stuck to his guns and actually finished the course, although his time was 1 hour 39 mins. 6⅘ secs. Deducting his stop for repairs, his actual flying time was such as to give him a speed of 161 m.p.h. Even apart from the broken oil-gauge, he would have been slower than Lecointe. One rarely remembers having seen anybody quite so dirty as was de Romanet on landing. During the last lap an oil leak developed, with the result that the pilot was absolutely smothered in oil. He had to raise his goggles, and was absolutely blinded by the oil. How he managed to make a safe landing is a mystery, but he did not break as much as a wire.



The Gordon-Bennett Race: Taking Raynham's Martinsyde "Semiquaver" out to the starting line

When Lecointe began to pile up his laps his times were found to be as follows: 100 km. 21 mins. 36¾ secs., 200 km. 43 mins. 42⅘ secs., 300 km. 1 hour, 6 mins. 17⅛ secs. On alighting after the last lap, Lecointe was carried shoulder high to his hangar, apparently finding this perch somewhat unstable without *ailerons* or elevator to help him. Although Raynham had not yet started, the public acclaimed Lecointe as the winner, and as things turned out this proved to be correct.

It was not until about 4.30 that Raynham had the Martinsyde "Semiquaver" brought out of its hangar and wheeled out to the starting-line. Without any fuss whatever Raynham got off, circled around and crossed the starting-line. Watch in hand, the British contingent awaited his return. As the minutes ticked away one began to realise that unless Raynham hove in sight soon he would stand little chance of beating Lecointe. When the first 21 minutes passed without sight of the "little red devil" (meaning the "Semiquaver" and not Raynham), one began to become anxious, and when, finally, he did come into view, the time taken was already considerably in excess of that taken by Lecointe in his first lap. It soon became apparent that Raynham

was getting ready to land, and with this realisation came that of the defeat of Great Britain. After making a perfect landing. Raynham told us his tale: The outward trip, although the engine was not all-out, took less time than Lecointe's, but on the return trip from the far turning point at Gidy the oil pump broke, and all hope of carrying on broke with it. Thus the only representative of this country was out of the running, and the Cup had definitely gone to France. One sympathises with Raynham's bad luck, as he would otherwise have put up an excellent fight for first place, having at least an even chance of winning it.

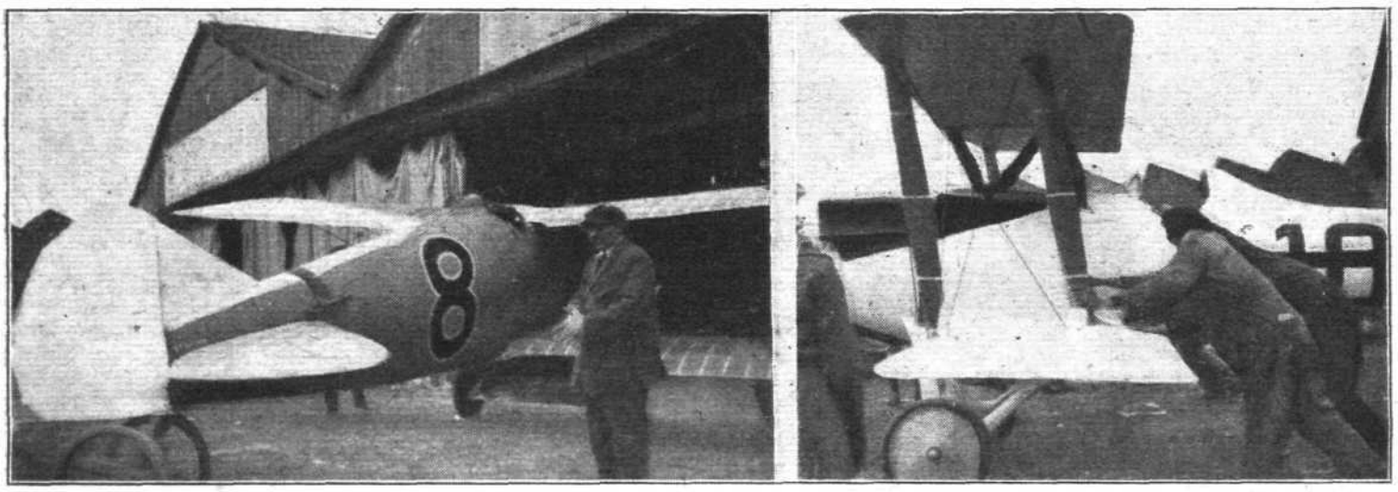
Britain's Dwindling Chances

When it was announced that the Sopwith machine would not be able to take part in the Gordon-Bennett race, the chances of this country winning the Cup were reduced by at least a third. Fitted with a Jupiter engine of 450 h.p., and weighing little if any more than some of the machines with far less power, the Sopwith would undoubtedly have showed a terrific turn of speed. However, the fates decided otherwise, and it then rested with the Martinsyde "Semiquaver," and the British Nieuport "Goshawk" to uphold the honour of this country. Both these machines were known to be very fast, both having established British speed records at Martlesham. When the "Goshawk" failed to arrive at the Villesauvage aerodrome on Sunday night, fears began to be entertained as regards the starting in the race of this machine. It was still barely possible that James might bring it over from Le Bourget early on Monday morning, but as the rules stipulated that all machines had to be on the aerodrome by 7 a.m. on Monday, it was feared that it would be impossible even for James to find his way so early in the morning. As the hours passed it became evident that the machine was ruled out, unless the officials agreed to waive this rule. This they refused to do, and nobody really blamed them; a rule is a rule, and it was obviously impossible to keep the entry open indefinitely. The result was that there was only Raynham left to put up a fight against the other five competitors.

The history of James's flight from Hendon to Etampes on the Nieuport "Goshawk" is one to fill one with wonder on the one hand and with indignation on the other—wonder at the skill and courage which enabled him to pilot such a fast racing machine across country for hundreds of miles under the most unfavourable weather conditions, and indignation at the red tape which caused the "Goshawk" to be late for the race. The first start was made from Hendon on Saturday, September 25, in very thick weather. Climbing to 6,000 ft., James, who had agreed to fly the machine to Etampes for his friend and fellow pilot, Tait-Cox, who was feeling very unwell, started out for Lympne, but the visibility was so poor that he gradually had to come down to 450 ft. Realising that it would be hopeless to start out for France under such conditions, James had to turn back, and eventually landed safely at Hendon. On the Sunday, conditions were a little better, but it was not until after midday that a start could be made. A landing was made at Lympne at five minutes to four in order to get the machine cleared by the customs' authorities, who had been advised by telephone of James's arrival. When he began a search for the customs' official it was discovered that this personage was nowhere to be found, and nobody seemed to know where he was. In the meantime, James had to kick his heels (in the absence of the customs official!), and it was not until a couple of hours later that this high and mighty one could be found, and by the time James finally managed to get through the red tape and make a start it was twenty minutes past six. He got across to Le Bourget, but to proceed to Etampes was out of the question. On Monday, September 27, the weather was so bad that it was quite impossible to start, and it was not until the morning of the race that James could bring the "Goshawk" over to Etampes.

His cross country flight necessitated something like nine landings between Hendon and Etampes, several of which were made in small fields. What this means will be realised by everyone who knows the landing speed and length of landing run of such a fast racing machine.

Although less spectacular, Raynham's progress with the Martinsyde "Semiquaver" was also something of an achievement. The machine was towed behind Raynham's car the whole way on its own wheels. Accompanied by his friend, Mr. McGeagh Hirst, Raynham, in his characteristic calm and unostentatious way, put the tail skid of the "Semiquaver" on the back of his car, and thus trundled the machine all the way from Brooklands to Etampes. (One gathers that the *modus operandi* was slightly different across the Channel.) The only damage sustained on that long trek was one shock absorber chafed through and one puncture. The machine actually flew in the race with the two wheels on which she had made the journey across. This speaks well not only of the machine itself, but also of the Palmer wheels. When we left Raynham at the Hotel du Grand Monarque at Etampes he was looking forward to making the return trip in the same way. Truly a man like that deserves better luck than Raynham has had.



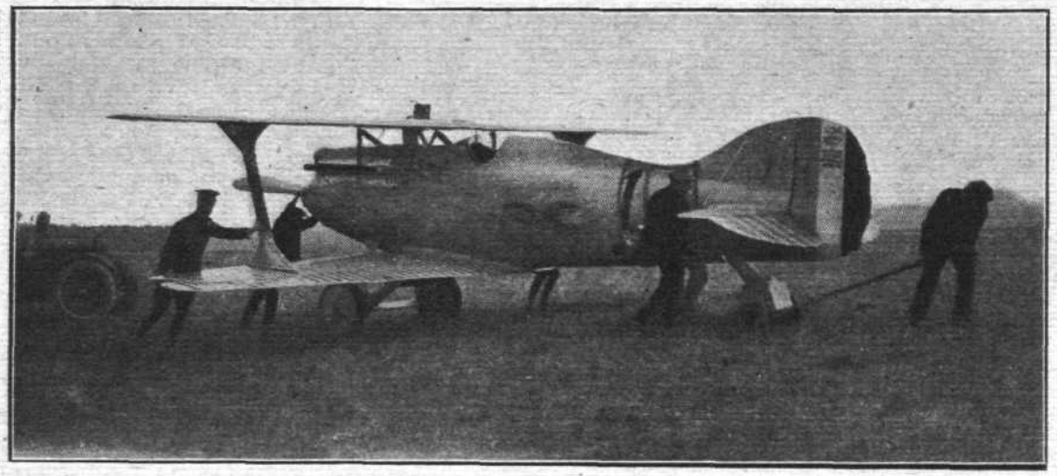
THE GORDON-BENNETT RACE: The Spad, flown by M. B. de Romanet, had its top plane mounted direct on the *fuselage*, as seen in the left-hand photo. above. In Lecointe's Nieuport stream-lining was carried to a finish. Note, in the right-hand photo., casing around exhaust pipes, and fairings on wings and body where struts are attached

THE MACHINES

With the exception of the three American entrants, the machines entered for this year's "G.-B." were already fairly well known to readers of FLIGHT. The Martinsyde "Semiquaver" was to all intents and purposes identical with that flown by Courtney in the Aerial Derby. The *fuselage* was the same, repaired after Courtney's crash, and the wings were of similar design, although of slightly smaller area to those used in the Derby. As the machine was exhibited at the Olympia Aero Show, it will be familiar to all. Suffice it to point out that it is fitted with a 300 h.p. Hispano-Suiza engine, the same as that of Lecointe's winning French Nieuport, and it probably is of the same speed or possibly even a shade faster. This particular Hispano is a fairly old engine, and has not had bestowed upon it nearly as much care in tuning up as had its French competitor. Otherwise there is not the slightest doubt that Raynham would have given Lecointe a good run for his money.

The British Nieuport

Like the Martinsyde, the (British) Nieuport "Goshawk" will be known to our readers from its participation in the Aerial Derby, in which race engine trouble prevented the machine from making the showing it was really capable of.



The Gordon-Bennett Race: The Verville-Packard flown by Major Schroeder

It has been designed by Mr. H. P. Folland, Chief Engineer and Designer to the British Nieuport Co. In its general design it is somewhat similar to the well-known "Nighthawk," but has small, non-staggered wings with one strut on each side. In spite of its high speed (at least 170 m.p.h.) it lands at the comparatively low speed of 65 m.p.h., and that the design is robust and by no means a racing freak is amply proved by the splendid cross-country flight made on it by Mr. J. H. James. The engine is a 320 h.p. A.B.C. "Dragonfly," which has regained the reputation it lost in the Aerial Derby by "sticking it" all the way from Hendon to Etampes without a hitch.

The Two French Nieuports

Generally speaking, the two Nieuports entered are similar to that shown for a few days at the last Paris Aero Show. Lecointe's machine had had the top plane reduced in span so as to gain slightly in speed, the top plane being chosen because it is not fitted with *ailerons* and is thus easier to cut down. The *fuselage* is of monocoque construction, very carefully streamlined, and the vertical fin to which the rudder is hinged is built integral with the body. The very greatest care has been taken to streamline everything as far as possible, and the machine probably represents the practical limit in streamlining for the standard type of aeroplane. It thus scored by detail refinement rather than by any departure from orthodox design. The machine flown by Kirch was similar, except that its wings were of slightly greater area.

The Spad

As regards the French Spad flown by Bernard de Romanet, this had the standard Spad *fuselage* of monocoque construction, but an alteration in the wing arrangement was noticeable. Instead of carrying the top plane on centre section struts from the body, the G.B. Spad had its top plane attached direct to the *fuselage*. Judging by its performance, this innovation did not improve the speed, and the machine was obviously slower than Lecointe's Nieuport. In the first place, the maximum cross section of the body is much greater than that of the Nieuport, and the large nose radiator probably does not make matters better, although one would imagine that the two Lamblin radiators fitted to the Nieuport offer quite a lot of resistance. However, these radiators are now very extensively fitted on French machines, so possibly their resistance is less than one would be inclined to expect.

The Verville-Packard

The chief interest of this American machine lies in the size of its engine. The Packard is credited with a power of somewhere about 600 h.p., and was thus by far the most powerful in the race. It has a very high compression ratio—over 6 to 1—and the not unexpected result was that it overheated and prevented Major Schroeder from completing even the first lap. One therefore had no opportunity of seeing what speed the machine actually was capable of. The design of the machine is obviously influenced by M. Herbemont's Spad designs. The large *fuselage* is of monocoque construction, with the fin built integral with the body. The wings have a decided taper towards the tips, and there is only one strut on each side. This is of the "I" type, and does not impress one as any too strong, especially when it is remembered that the machine is a large one. To make matters worse, the planes have a pronounced stagger, which makes the use of "I" struts a doubtful procedure. One understands that the machine has been flown in America, but at Etampes it was never flown until Major Schroeder started in the Gordon-Bennett Race. One was not, therefore, surprised to find that things went wrong during the race.

The "Texas Wildcat"

With regard to this machine one cannot speak from first-hand knowledge, as the machine was kept at Villacoublay, and did not arrive at the Villesauvage aerodrome until Sunday, September 26, when it was flown over by Roland Rohlfs. One gathers that some obscure metamorphosis had taken place between the test flights in America and the arrival at Etampes. While the machine alleged to have been entered for the race was a monoplane with thick wings, the machine which arrived at Etampes is said to have been a biplane. Something appears to have happened during the interval, and on the arrival at Etampes things happened again, fast and furiously. That the machine was fast cannot be denied. So, unfortunately, was its end. In landing, the wheels, which apparently were not sprung, collapsed, and the next time the machine touched, the points of the chassis struts dug into the ground, and the machine nosed over, breaking itself into fragments from which little or no idea of its original shape could be formed. By a marvellous piece of luck the pilot was not killed on the spot, his injuries being confined to a dislocated shoulder, several cuts about the head and a very black eye. On the day of the race he was on the aerodrome taking a keen interest in the race, and all will join in wishing this plucky American a speedy recovery.

The Dayton-Wright Monoplane

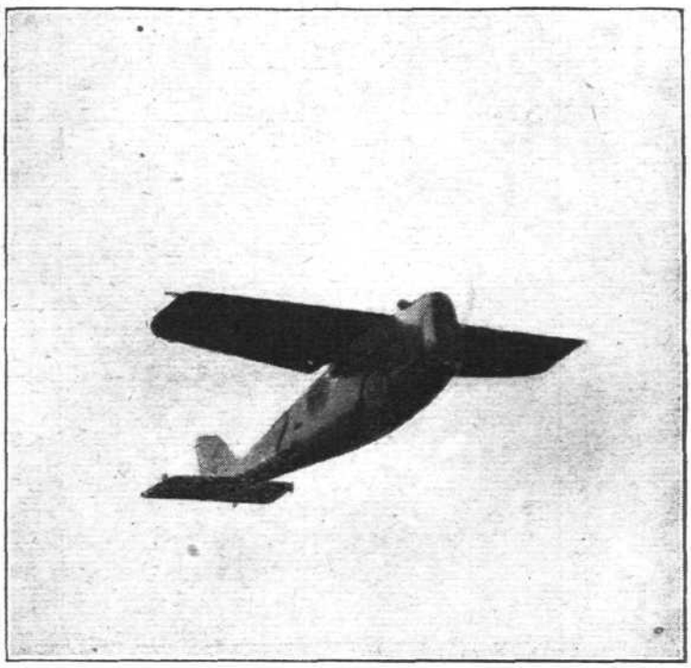
In many respects the machine entered by the Dayton-Wright Co. was the most interesting of all at Etampes. Whereas in the other machines performance was attained by engine power and by carrying streamline refinement to a maximum, in the "R. B." a serious attempt was made at attaining the same performance with a small engine, but reducing head resistance to a minimum by flattening out the wing section and withdrawing the undercarriage inside the *fuselage*. A broken rudder cable prevented this machine from showing what it really can do, but whether or not the arrangement would have resulted in a speed superior to that of the other machine, the originators of the design deserve credit for their courage in breaking away from conventionality and seeking improvement along original lines. There is little doubt that something like finality has been reached as regards the attainable speed with the aeroplane as we know it today, and if appreciably greater speeds are to be attained some other means will have to be adopted. That there are features which are open to criticism in the Dayton-Wright may be admitted, but the machine is frankly an experiment, and judged as such is well deserving of praise.

The *fuselage* is of the monocoque type, and appears to be built on more or less orthodox lines. Its chief feature is that although very narrow it is extremely deep—so deep, in fact, that the pilot is entirely enclosed inside the cabin and obtains his view through windows in the side. This arrangement is certainly open to objection as the view must necessarily be restricted. We have, however, discussed this point with several experienced pilots, and they are of the opinion that the view is really very little worse than that of the ordinary machine, where in any case one can see very little straight forward. For landing, the pilot merely pushes the windows in the side open with his head and can then see quite well enough. At any rate Rinehardt made a perfect landing on the day of the race, and did not appear in the least handicapped by being inside.

The great depth of the *fuselage* allows of lifting the whole undercarriage up inside for maximum speed. Each wheel is mounted on a short stub axle, held in place by two radius tubes which fall into slots in the *fuselage* covering. From just inside the wheel a thick tube runs upwards and inwards, passing through a phosphor-bronze casting, and terminating at the top in a T-piece. From arms on the phosphor-bronze casting shock-absorbers pass around the T-piece, thus providing the springing by a form of crutch. The phosphor-bronze castings themselves are mounted on worms running up to the top of the *fuselage*. Rotation of these worms, by means of a handle placed in the pilot's instrument board, raises the castings, and with them the sliding tubes, wheels and radius rods, until the wheels lie flush with the sides of the *fuselage*. The wheel-operating gear is connected up to the gear operating the variable camber, so that when the wheels are "retracted" the wing section is flattened out, while for landing the wheels are down and the section at its maximum camber.

The wings themselves are of interest, not only on account of their variable camber, which is effected by dipping and raising leading and trailing edges, but also because of their unusual construction. Practically the wings are solid wood, with chunks cut out here and there. The wood employed is known as Balsa, and has extraordinary properties. In the first place, it is said to be lighter than cork, and, although its strength is not so great as that of some of the more frequently employed aircraft timbers, it can be employed in such great sections that the necessary strength can be provided. This is what has been done in the case of the Dayton-Wright. The solid, or nearly so, portions of the wing has cut out of it pieces which leaves a form of cellular structure as the main framework of the wing. The top and bottom surfaces are then covered with three-ply wood, and the resulting wing appears to be very strong. We saw mechanics walk out to the wing tips with, apparently, no deflection nor any dents made in the wing. The weight is said to be very small per square foot of area, but no actual figures are available.

One gathers that it is the intention to exhibit the machine in Paris, and it is to be hoped that it may also be seen in this country. Its design is undoubtedly a step in the right direction, and, although like so many other first steps, it may not be perfect, it is of more than ordinary interest, and deserves to be seriously studied. The design, by the way, is not new, but is the result of several years' study, and the aerodynamic qualities have been tested in the Wright Laboratory at Dayton, Ohio. Future developments will certainly be watched with the greatest interest.



THE GORDON-BENNETT RACE: The Dayton-Wright in flight. Note the clean appearance resulting from drawing the undercarriage into the *fuselage*

£5,000 for R.A.F. Fund

LORD HUGH CECIL, as chairman of the Royal Air Force Memorial Fund, has received £5,000 from Lord Cowdray, who was Chairman of the Air Board in 1917, as a contribution to the Fund, with a wish for "all the success the memorial merits."

Red Cross Dance at Hendon

THE dance at the London Country Club, Hendon, on Thursday, October 14, in aid of the British Red Cross Society and the Order of St. John, promises to be a great success. Those who wish to be present should secure their tickets as soon as possible from the secretary of the club or the Red Cross Headquarters, 19, Berkeley Street, W.

Civil Aviation in Egypt

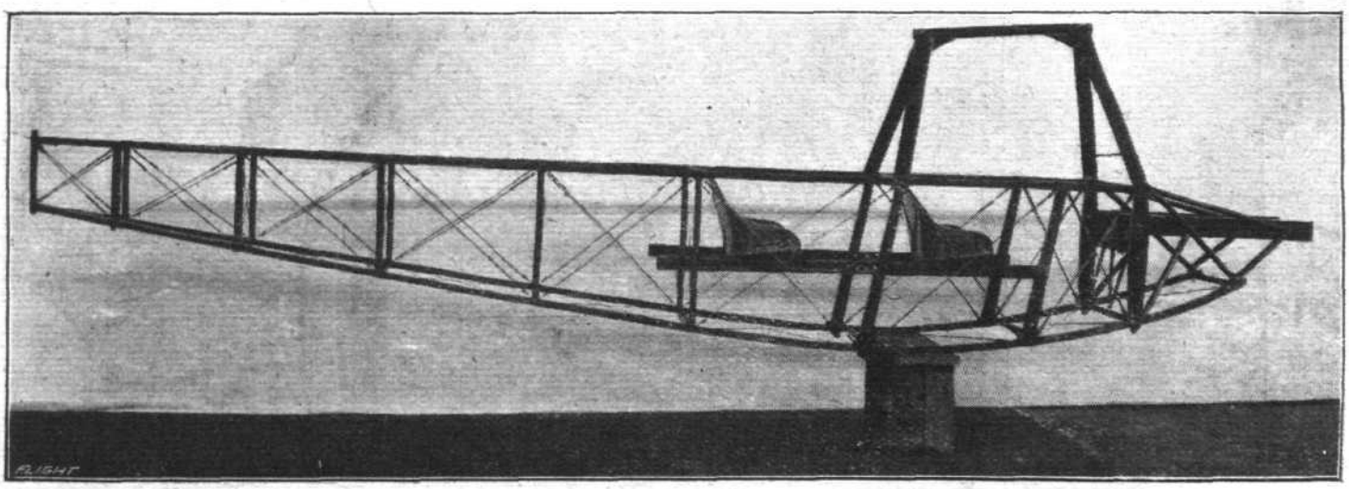
A MOVE in the right direction is being made in Egypt, if a report to hand from Cairo is to be credited. It is said that the Ministry of Communications has come to an agreement with the Royal Air Force to hire a certain number of the latter's aeroplanes and seaplanes at the rate of £10 per passenger per hour, plus the price of petrol and oil.

Aviation in Rhodesia

RHODESIA is not only studying the commercial possibilities of aviation, but recently experimental flights have been made between Bulawayo and Salisbury, and Bulawayo and Livingstone. Mails and parcels were carried on each occasion, and the result was announced as a complete success.

Transport in Argentina

SEEMINGLY the rivalry between the various States is speeding up matters aviatic in South America. At any rate the Argentine Senate has passed a Bill granting a concession to an Aviation Company to transport passengers, mails and parcels between the Province of Buenos Aires and Patagonia up to the Magallanes. The Bill also authorises the issue of a special postage stamp for this service.



AN EXAMPLE OF U.S. CONSTRUCTION: The *fuselage* of the Lawson M.T.2 tractor biplane. Note the method of suspending the seats and the substantial engine mounting.

AIR MINISTRY COMPETITION, 1920

TABLE OF DATA REGARDING AMPHIBIANS, ARRANGED ALPHABETICALLY

Names	Horse-power: Nominal and type of engine	Horse-power: Actual (a)	Area sq. ft.	Weight in lbs.: Total: Empty (including water and mooring gear)	Weight in lbs.: Total: With fuel for 350 knots at cruising speed	Weight in lbs.: Total: Performance tests	Weight in lbs.: Total: Reliability test	Weight in lbs.: Total: Certificate of air-worthiness	Weight in lbs.: Useful load: Performance test	Weight in lbs.: Useful load: Reliability test	Fuel used in 3½ hours' cruising: Petrol / Oil / Total	W/G (b)	Speed: Cruising: Indicated	Speed: Cruising: Actual	Speed: High	Speed: Low	"Get off," feet above zero (c)	Landing, yards from mark	Lb. per h.p.: Total: Performance tests	Lb. per h.p.: Total: Reliability test	Lb. per h.p.: Useful load: Performance tests	Lb. per h.p.: Useful load: Reliability test	Lbs. per sq. ft.: Performance tests	Lbs. per sq. ft.: Reliability test
Fairey ..	450 h.p. Napier "Lion"	504 at 2,200 r.p.m. On high speed test r.p.m. were 2,200	544·2	3,771	4,507	5,207	5,250	5,250	500	(d) 543	62 / 2 / 64	8·5	80 (m) —	81·8 (m) 71 (k)	(e) 118·5 (m) 103 (k)	54·4 (m) 47·25 (k)	Land 47 Sea 89	337	10·33	10·42	0·99	1·08	9·57	9·65
										538	60·7 / 1·5 / 62·2	8·65	78·5 (m) —	79·5 (m) 69 (k)	108·5 (m) 94·5 (k)		Land 104							
Supermarine	350 h.p. Rolls-Royce "Eagle VIII"	352 at 1,800 r.p.m. On high speed test r.p.m. were 1,900	600	3,996	4,720	5,420	5,700	5,700	500	(f) 780	58·75 / 6·65 / 65·4	11·88	77 (m) —	77·35 (m) 67·25 (k)	94 (m) 82 (k)	55 (m) 48 (k)	Land — Sea 60	321	15·4	16·19	1·42	2·22	9·03	9·5
										674	75 / 1·75 / 76·75	8·8	80 (m) —	80 (m) 69·6 (k)	—		Land 102							
Vickers' "Viking III"	450 h.p. "Napier Lion"	504 at 2,200 r.p.m. On high speed test r.p.m. were 2,190	520	3,622	4,200	4,900	4,900	4,900	500	500	49·75 / 1·5 / 51·25	9·75	80·25 (m) —	82 (m) 71 (k)	121 (m) 105·2 (k)	52 (m) 45·25 (k)	Land 94 Sea 177 Sea 341	382	9·72	9·72	0·99	0·99	9·42	9·42

Explanatory Notes

(a) Figures for horse-power were taken from the logbooks of the engines concerned. The r.p.m. attained on the high speed tests are given for comparison.

(b) The figures for W/G should be halved for comparison with the similar figures for Aeroplanes, published in A.M. Communiqué No. 607.

(c) In order to facilitate the photographic measurement of these heights the tests of the *Fairey* and the *Vickers* machines were carried out with a 275 yards run in lieu of the 400 yards distance laid down in the rules. The first figure under the sub-heading "land" gives the actual height attained in 275 yards, the second figure is the corrected height for the 400 yards distance.

(d) The Fairey was permitted to undergo a second economy test owing to bad weather conditions on the first test. The figures for both tests are given in the order in which they took place.

(e) The higher figures were obtained with the undercarriage raised, the lower with the undercarriage down. Similar alternative tests with the *Vickers* showed no difference in speed.

(f) The first economy and the reliability test of the *Supermarine* were ended after three hours ten minutes owing to the fracture of an oil pipe on the engine. The first figures given are those based on this flight; the second are those based on a further 3½ hours' flight at a low altitude in bad weather on the last day of the Competition.

(m) Miles per hour.

(k) Knots.

FLIGHT

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

FRENCH AIR RACE

Paris–London–Paris, Sunday, October 10, 1920

In connection with the Buc Aviation Meeting on October 8, 9 and 10, 1920, there is to be a race for French Transport machines on the Paris–London Route on Sunday, October 10, 1920. The machines will leave Buc Aerodrome, Paris, and alight at Waddon Aerodrome, Croydon, and return immediately to Paris.

The following is an extract from the Regulations :—

"Machines must conform to the following conditions :—

"Postal machines (machines carrying postal bags only) to carry a load of at least 50 kgs.

"Transport machines to carry a minimum of two passengers in addition to the crew; the passengers must be at least 18 years of age. On the outward journey the passengers must be on board; on the return journey each passenger may be replaced by 100 kgs. of ballast. In the case of machines of 500 h.p. or more, the crew must consist of at least two persons."

The following is the list of Entries :—

Entrant.	Pilot.	Machine.	Motor.
Grands Express Aeriens.	Favereau or Patin.	F. 60.	2 Salmson 260 h.p.
Franco Roumaine.	Bajac.	S.E.A. 7.	Lorraine Dietrich 370 h.p.
Transaerienne...	Lasne or Petit	Nieuport 30.	Sun. 350 h.p.
l'Aeronavale ...	Martin.	Loiré and Ollivier 6.	2 H.S. 150 h.p., 1 S. 260 h.p.
Messageries ...	Bizot.	Spad 27.	Hispano Suiza 275 h.p.
Messageries ...	Bourdon.	Spad 27.	Hispano Suiza 275 h.p.

The Royal Aero Club has charge of the arrangements on this side of the Channel.

Offices : THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.
H. E. PERRIN, Secretary.

For Electrical Research

THE Secretary of the Department of Scientific and Industrial Research begs to announce that a licence, under Section 20 of the Companies' (Consolidation) Act, 1908, has been issued by the Board of Trade to the British Electrical and Allied Industries Research Association, which has been approved by the Department as complying with the conditions laid down in the Government scheme for the encouragement of industrial research. The Association may be approached through Mr. E. B. Wedmore, Electrical Research Committee, c/o Electrical Development Association, Hampden House, 64, Kingsway, W.C. 2.

Air Work in Mesopotamia

THE War Office *communiqué* of September 29 stated : "On the Lower Euphrates Samawa is reported quiet; hostile concentrations were bombed on the morning of the 27th."

The *communiqué* of October 1 stated : "On the Lower Euphrates aeroplanes flew over Samawah on the 28th. No hostile concentrations were observed.

"On the Middle Euphrates our aeroplanes flying over Kufah dropped letters, cigarettes, and tobacco, the receipt of which was acknowledged by the garrison by means of Very lights. Our machines were fired at from the town and encampment.

"On the same day a raid was made on Diyala Qarnabik (3 miles north of Bakubah), which was the headquarters of a notorious outlaw, Abdika. His following suffered heavy losses, but Abdika himself escaped.

"South-east of Baghdad an aerial reconnaissance on the 28th reported that to all appearances everything was quiet on the Shatt-el-Hai."

The *communiqué* of October 2 stated :—

"Lower Euphrates.—Reports indicate that the air raid carried out on September 28 over Samawa obtained good effect with bombs, and that no hostile concentrations were observed between railhead and Khidr (about 20 miles south-east of Samawa)."

A Relic of the War

A REPORT which has been received in Copenhagen from Lemvig (Jutland) states that a Danish fisherman at Vedersoe, 4 miles from the land, found on the sea bed the wreck of a large Zeppelin airship, which it is believed was shot down by a British aviator during the war.

Further Reduction in H.P. Freight Rates

ON and after Friday, October 1, 1920, the freight rates for goods carried on the Handley Page Air Services between London-Paris and London-Brussels and *vice versa*, will be further reduced as follows :—

From London : Up to 100 lbs., 1*s.* 3*d.* per lb. ; over 100 lbs. 1*s.* ; minimum, 2*s.*

To London : Up to 50 kilos., 7 frs. per kilo. ; over 50 kilos., 6 frs. ; minimum, 5 frs.

A Royal Gift by Air

IT was fitting that the aerial post between England and Copenhagen should be inaugurated on September 30 by Queen Alexandra, who chose this method of sending 5 kilos. (about 11 lb.) of fruit in a basket to the Empress Marie of Russia. The basket had been despatched from Marlborough House on the previous day at three o'clock, and was conveyed to the Empress at her country seat, Hvidoere, outside Copenhagen at five p.m. on September 30.

Lausanne to London

THE Handley Page aeroplane which flew from London to Lausanne, on August 26, left Switzerland at 9.25 a.m. on September 22, with passengers, and reached Paris at 1.47 p.m. The pilot, Lieutenant W. L. Hope, reports that in order to rise above the mountains and clouds the machine had to climb over 4,200 ft. A short stay was made in Paris, before returning to Cricklewood on September 23. The actual flying time from London to Lausanne was 6½ hrs. The time taken on the return journey was 7 hrs. The total number of passengers carried during the stay at Lausanne was 261, and included the President of the Swiss Confederation and other notabilities.

Morane and Latécoére Honoured

THE promotion of Latécoére and Robert Morane to be Chevaliers of the Legion of Honour are honours well earned. The former was the founder of the air service between Toulouse and Casablanca which has been running for two years, while Ronert Morane is the head of the Morane-Saulnier firm.

To Represent France in G.B. Balloon Race

CAPT. LOUIS HIRSCHAUER, with his *aide*, M. Leo Nathan, sailed on October 4 for the States, where he is to represent France in the Gordon-Bennett Balloon Race which is arranged to take place on October 23.

To Replace the G.B. Trophy

FRANCE having won the Gordon-Bennett Aviation Trophy three times, and so secured permanent possession of it, a new trophy has been offered by the Aero Club of Texas for International competition. The trophy is to be called the Cox Trophy, after Mr. Cox, through whose generosity it has been offered, and there will be a cash prize of 10,000 dollars.

How Sweden Does it

FROM a message from Stockholm it appears that the Swedish Government is determined to encourage the development of an aerial postal service. It has decided to subsidise the Swedish Air Traffic Co. by the payment of 500 kroner for each journey between Malmoe, Copenhagen and Warnemunde.

NOTICES TO AIRMEN

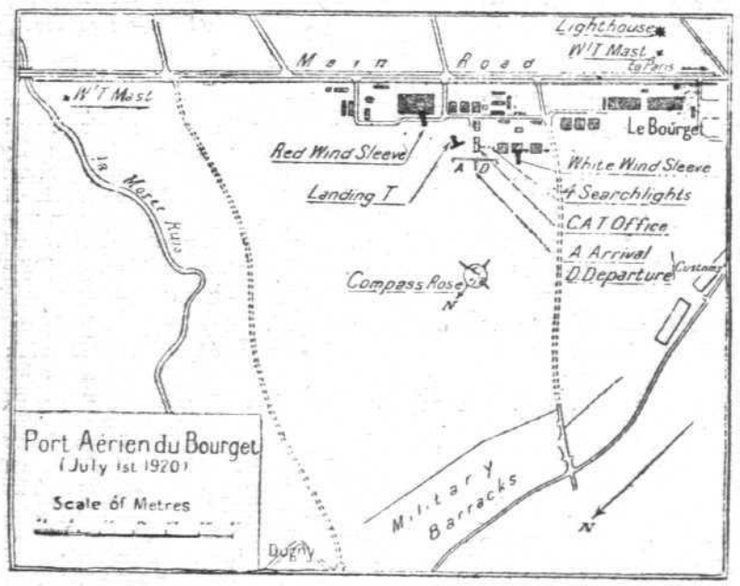
(No. 98) France: Aerodromes, Customs and Wireless Stations

PREVIOUS notices to airmen regarding aerodromes, etc., in France are revised as follows :—

Aerodromes

ST. INGLEVERT (Lat. 50° 53′ 0″ N., Long. 1° 44′ 30″ E.), approximately 5 miles S.S.E. of Calais, was opened as a Customs Aerodrome on May 20. (*See* Plan annexed.) Customs *personnel* are on duty during the day only. Petrol, oil and water supplies are available, and a handling party is stationed on the aerodrome. There are two hangars in the S.E. corner of the aerodrome. No repairs can be carried out. A wind indicator is placed on the S.E. boundary of the aerodrome.

The area most suitable for landing is marked by white lines. The centre of the landing-ground is marked by a white circle 132 ft. in diameter, and on the south side of the circle is the name "St. Inglevert," so placed as to be read from the south. A wind sleeve is placed on a 16-metre post near the hangars at the S.E. corner, and a landing "T" is situated near this. The red or white flag required by the International Convention which indicates the anti-clockwise or clockwise circuit, is hoisted on the post carrying the wind sleeve. In case of fog, rockets are sent up to indicate the position of the ground and Bengal lights are lighted in the landing circle.



An aerial lighthouse has been installed outside the S.E. corner of the aerodrome, and is in operation every evening from sunset to 1½ hours after sunset. Its characteristic signal is the letter "A" of the Morse Code every 8 seconds, thus :—White light, 0.5 sec.; eclipse, 0.5 sec. White light, 3.0 secs.; eclipse, 4.0 secs.

There is a wireless station on the aerodrome with an aerial between two masts, one inside the boundary of the aerodrome near the hangars and the other outside near the Boulogne-Calais road (*see* "Wireless").

Obstacle lights are fixed on all high obstacles.

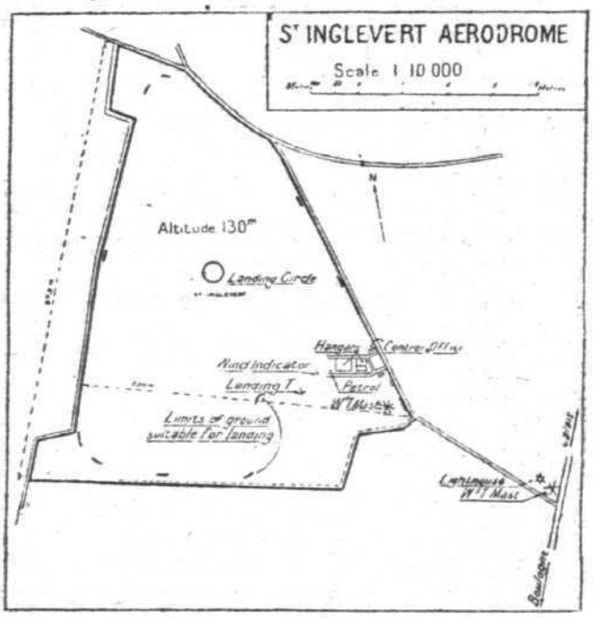
LE BOURGET (Lat. 48° 57′ 0″ N., Long. 2° 25′ 0″ E.) is a French Customs Aerodrome situated about 7 miles N.E. of Paris. (*See* Plan annexed.) Petrol, oil, and water, and hangars are available. A landing "T" is situated in the angle formed by the line of hangars and the offices of the aerodrome. Wind sleeves are fixed on the gables of the centre S.N.Ae. hangar and the workshop hangar. A red flag is hoisted on the offices of the aerodrome when the wind speed is greater than 4 metres per sec. (Approx. 10 m.p.h.) in which case taking off and landing should take place upwind. The flag is lowered when the wind speed is less than 4 metres per sec., in which case taking off and landing should take place towards the north. On the ground opposite the offices of the aerodrome, there is a white "T" which indicates the zone to be used by machines before starting and after landing, for taking up and setting down passengers or freight. The starting zone is to the south of the dividing line, and the arrival zone is to the north of the line. The words "Arrival" and "Departure" are marked on the ground in white letters in French and English.

An aerial lighthouse, showing a white light, is installed on the south side of the aerodrome, and is in operation every evening from sunset to 1½ hours after sunset, and also by request when the arrival of machines is notified. Its characteristic signal is the letter "N" of the Morse Code every 8 seconds, thus :—White light, 3.0 secs.; eclipse, 0.5 sec. White light, 0.5 sec.; eclipse, 4.0 secs.

The aerodrome is also illuminated by a battery of searchlights, situated near the offices, which illuminate a landing run of about 800 yards. There is a wireless telegraph station (*see* "Wireless") in the aerodrome, with an aerial on the eastern side. This obstacle is marked by fabric pennons during the day and a white light at night.

BORDEAUX (TEYNAC) (Lat. 44° 50′ 30″ N., Long. 0° 42′ 0″ W.) is a French civil aerodrome situated 6 miles west of Bordeaux. Petrol, oil, and water, and hangar accommodation are available. A landing "T" is situated in the north corner of the ground. A wind sleeve is situated on the hangars near the north corner. Circuits of the aerodrome should in all cases be made in an anti-clockwise direction.

Night Landing Arrangements.—(1) Two white lights, 300 yards apart, are placed on the leeward side of the aerodrome, marking the leeward boundary of the landing and taking-off area. A third white light is placed on the windward boundary, making with the two leeward lights an isosceles triangle; a machine landing must pass over the



two leeward lights, heading towards the windward light. When there is no wind the triangle of lights is placed in the position most favourable for machines landing.

(2) White lamps are placed on obstacles as follows :—Two on each Bessoneau hangar, one on each garage.

These landing lights are only exhibited when aircraft are expected.

Pilots intending to land at Bordeaux at night should therefore communicate direct with the Commandant, whose telegraphic address is :—Commandt, Aero Merignac, Bordeaux.

It is not necessary to advise the Commandant beforehand when landing by day. There is a W/T station on the aerodrome with a wireless mast in the north corner. (*See* "*Wireless*").

LYONS (BRON) (Lat. 45° 44′ 0″ N., Long. 4° 53′ 0″ E.) is a military and civil aerodrome, about 2 miles S.E. of Lyons. Three wind sleeves are installed. Two of these sleeves are red, and are situated on the western side of the aerodrome; the third is white, and is situated on the eastern side of the aerodrome. When there is no wind machines should land and take-off from south to north. An aerial lighthouse, showing a white light, is situated at the S.E. corner of the aerodrome, which is in operation each day from sunset to one hour after sunset. Its characteristic signal is the letter "H" of the Morse Code every 7½ seconds, thus :—White light, 0.5 sec.; eclipse, 0.5 sec. White light, 0.5 sec.; eclipse, 0.5 sec. White light, 0.5 sec.; eclipse, 0.5 sec. White light, 0.5 sec.; eclipse, 4.0 secs.

There is a wireless station on the aerodrome with a wireless mast in the S.E. corner. (*See* "*Wireless*").

Obstacles lights are fixed on all high obstacles.

VALENCIENNES (Lat. 50° 20′ 0″ N., Long. 3° 31′ 0″ E.) is an emergency landing-ground situated about 1½ miles south of the town of Valenciennes. An aerial lighthouse, showing a white light, is established on the aerodrome at the N.E. corner of the ground, and is in operation every evening from sunset to one hour after sunset. Its characteristic signal is the letter "V" of the Morse Code every 10 seconds, thus:—White light, 0.5 sec.; eclipse, 0.5 sec. White light, 0.5 sec.; eclipse, 0.5 sec. White light, 0.5 sec.; eclipse, 0.5 sec. White light, 3.0 secs.; eclipse, 4.0 secs.

Obstacle lights are fixed on all high obstacles.

NIMES (Lat. 42° 52′ 0″ N., Long. 4° 25′ 0″ E.) is a civil aerodrome situated about three miles N.E. of the town of Nîmes. There is a landing "T" in the centre of the ground, and a wind sleeve in the north corner of the ground. Four white "L's" indicate the area of ground in a good state for landing. There is a wireless station on the aerodrome, with a wireless mast in the North corner. (*See "Wireless."*) A petrol and oil store has been established on the aerodrome.

MILITARY STATIONS.—In addition to the above, the French Minister for War has granted permission to British civil pilots to land on the following French military aerodromes:—

Avord.	Istres.	Romilly.
Cazaux.	Luxeuil.	Thionville.
Châteauroux.	Lyons.	Tours.
Dijon.	Malzeville.	Hussein Day
Etamps.	Pau.	(Algeria).

Permission has also been given for civil pilots to land on the military manœuvre ground at Beauvais until further notice. The position of the ground is about 1½ miles south of Beauvais. This ground is used by troops, and in order to avoid accidents it is essential that pilots should not land direct, but should first fly round the ground at a height between 600 and 1,200 ft., or fire a signal from the machine, so that troops may have time to clear the ground.

Aerial Customs Stations

Article XI (Clause 1) of the "Provisional Agreement relating to Air Navigation between France and Great Britain" appoints Customs aerodromes as follows:—

> "All aircraft entering France must land at, and any aircraft leaving France for England must depart from, one of the following aerodromes, viz.:—St. Inglevert or Le Bourget."

Seaplanes flying between England and France must alight at one of the following ports for the purposes of Customs examination:—

Dunkirk.	Le Tréport.	Caen.
Calais.	Dieppe.	Cherbourg.
Boulogne.	Havre.	St. Malo.

The French Customs Administration enforce the same regulations for a seaplane alighting at a port as for a ship entering.

Telephone Priority

The following telephone stations have priority for urgent communications with respect to the safety of Air Navigation:

Stations in connection.	Telephone Exchanges.
Abbeville with Le Bourget *via* St. Inglevert.	Abbeville–Paris, Nord–Calais.
La Hève (meteorological) with military W/T, Kleber Barracks.	Le Havre.
Pujaut (principal air station) with Nîmes (principal air station).	Avignon-Nîmes.

Meteorology

The following wireless stations commenced on May 25 to issue warnings of squalls on a 1,400-metres wave length:—

Le Bourget	Z.M.	Amiens	Y.B.
Strasbourg	C.3.	Tours	Y.G.
Bourges	Y.E.	Toulouse	Y.F.

N.B.—Stations issuing weather reports are given in the Wireless Section, while Notice to Airmen No. 88, of August 19, 1920, gives further details of the reports issued.

Wireless Telegraphy and Radio Telephony Stations

The following wireless telegraphy and radio telephony stations, situated on the respective aerodromes, are established:—

Station and Nature of Transmission.	Range.	Call Sign.	Wave length.	Hours of Transmission.	Transmission at Fixed Times.
Le Bourget—	km.		m.		
(1) (*a*) C.W.	800	Z.M.	900	0700–1900	
(*b*) Interrupted C.W.	400				
(*c*) Radio telephony	250				
(2) C.W.	400	Z.M.	1400	0700–1900 0730, 0930, 1030, 1130, 1330, 1530, 1830	Meteorological messages relating to the London-Paris Service.
St. Inglevert—					
(1) C.W.	400	A.M.	1400	0700–1900 0705, 0905, 1005, 1105, 1305, 1505, 1805	Do. do.
(2) Radio telephony ..	150	A.M.	900		
Lyons (Bron)—					
C.W.	400	A.L.	1400	0700–1900 0850, 1050, 1450, 1620, 1850	Regional meteorological messages.
Nîmes—					
C.W.	300	A.N.	1400	0700–1900 0710, 0910, 1310, 1810	Do. do.
Bordeaux (Teynac)—					
C.W.	300	A.B.	1400	This station is not in operation at present.	
Maubeuge	—	A.V.	1200	This station will later be incorporated in the Paris–London system with a wave-length of 1400 m.	

Direction Finding Wireless Stations

The following Direction Finding Wireless Stations have been established in France:—

Station.	Wave Length in metres.	Latitude.	Longitude.	Call Sign.
Barre de L'Adour ..	450	43° 32′ N.	1° 31′ W.	FLO
Bernières	450	49° 20′ N.	0° 25′ W.	UHN
Brest-Capucins (2) ..	450	48° 19′ N.	4° 35′ W.	HUD
Brest-Guipavas ..	450	48° 27′ N.	4° 27′ W.	FHA
Casablanca-Chetaba (3)	450	33° 35′ N.	7° 34′ W.	FCH
Chemoulin	450	47° 14′ N.	2° 18′ W.	FUH
Cherbourg	450 and 600	49° 37′ N.	1° 36′ W.	FFC
Le Havre	450	49° 32′ N.	0° 07′ E.	FFU
Lorient	450 and 600	47° 44′ N.	3° 21′ W.	FFL
Quessant-Pen ar Roch (1)	450 and 600	48° 26′ N.	5° 06′ W.	FHY
Pointe du Raz ..	450	48° 02′ N.	4° 44′ W.	FPU
Rochefort-Soubise ..	450	45° 56′ N.	1° 00′ W.	HOB
Treguier	450	48° 50′ N.	3° 14′ W.	FQC

Notes: (1) Quessant-Pen ar Roch answers FFF.
(2) Brest-Capucins answers FFK.
(3) Casablanca-Chetaba answers CNP.

The regulations for French D.F. Stations are similar to those of the United Kingdom, the conditions of which will be issued shortly.

Cancellation of Previous Notices

Notices to Airmen Nos. 15, 27, 28, 41, 43, 45, 50, 55, 59, 65, 66, 74, 75 and 76 of the year 1920 are hereby cancelled.

Authority.

Various French "Notices to Airmen" and official notices in the "Bulletin de la Navigation Aérienne."

NOTICE TO GROUND ENGINEERS

(No. 11) Strength of Control Cables

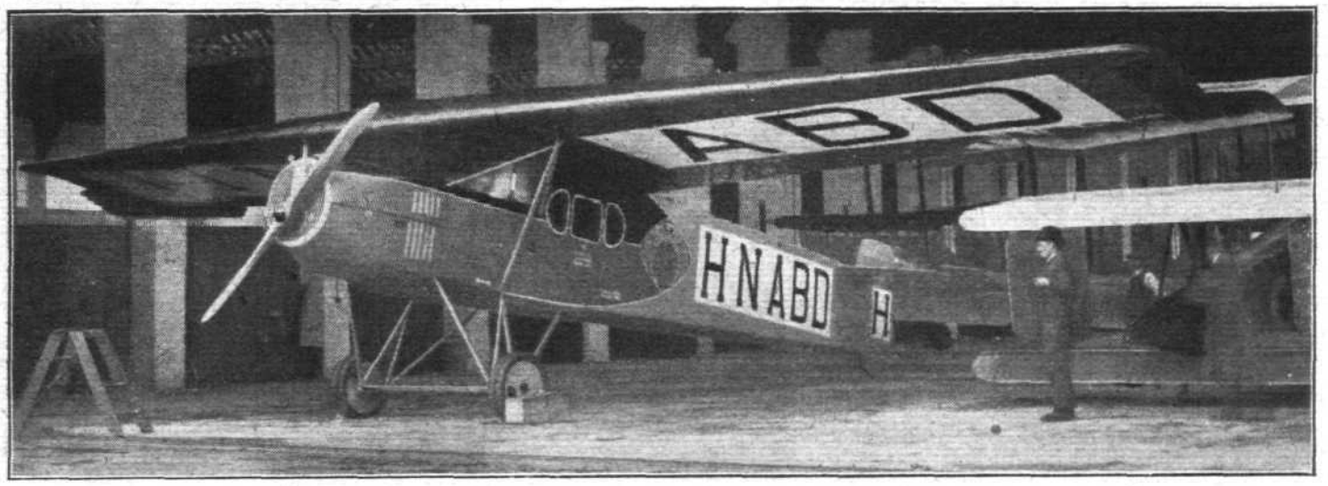
THE use of 5 cwt. cable for aircraft flying controls provides an insufficient margin of safety. All cables used to repair or replace any part of the flying control system should have a breaking strength of at least 10 cwt. (Spec. 2.W.2).

A German-Swiss Convention

A CONVENTION regulating aerial traffic between the two countries has recently been completed between Switzerland and Germany. The convention, which is similar in terms to those now in effect between Switzerland and Great Britain and France, was signed by M. Motta, the President, on behalf of the Swiss Confederation, and by Herr Muller for Germany.

A FOKKER RAID ON LONDON

THERE was a time when every machine that made a raid on London, or in use at the front for that matter, was labelled as a Fokker. That was before all the raiders were known as Gothas, irrespective of type and make. Since then the "Fokker Scourge" has been got well in hand, and the latest specimen to be examined in this country was the Fokker D.VII. Just lately a peaceful invasion by a machine designed by the famous German (now Dutch) designer has taken place, the objective being Waddon aerodrome. For the first time in history the pilot of the attacking Fokker was an Englishman, Mr. Hinchcliffe, who flew over from Amsterdam on October 1, making the non-stop journey in 3 hrs. 2 mins. The machine reached its objective, and was brought down at Waddon—by the pilot.



THE FOKKER F.II AT WADDON: Three-quarter front view

Seriously, the new Fokker, a description and illustrations of which were published in our issue of August 26, is a post-War design by the famous (German) Dutchman, built at the new Fokker works at Amsterdam—the old Elta buildings, in fact. It is the property of the *Koninglyke Luchtvaart Maatschappy*, otherwise the Royal Air Transport Company, and is the first of two such machines which are to be placed on the Amsterdam-London route, and which will ultimately link up with the service to Bremen, Hamburg and Copenhagen.

The machine, now known as the type "F.II," is a monoplane of the cantilever type, with a wing that is very thick in the centre and tapers towards the tips. The covering is of three-ply wood, which, if not too heavy, should prove very serviceable for a commercial machine. The large wing is placed on the roof of the cabin, and is held in place by four bolts only, one on each side at the top *longeron*, and one at the apex of each set of three struts running from the bottom of the *fuselage*. The work of dismantling the wing is therefore a matter of a few minutes only, another advantage for commercial work. Balanced *ailerons*, of small area but apparently quite effective, are fitted, three-ply covering being employed for these also.

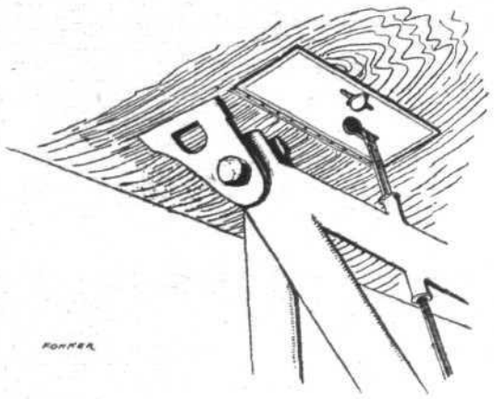
The construction of the *fuselage* is identical with that of the well-known D.VII, *i.e.*, *longerons* as well as struts are of steel tube, welded together and braced by piano wire attached to tubular arcs welded into the angles. Theoretically all this welding is bad, but in practice it appears to work very well. The cabin has seating accommodation for six passengers, and a seventh can be carried outside in the



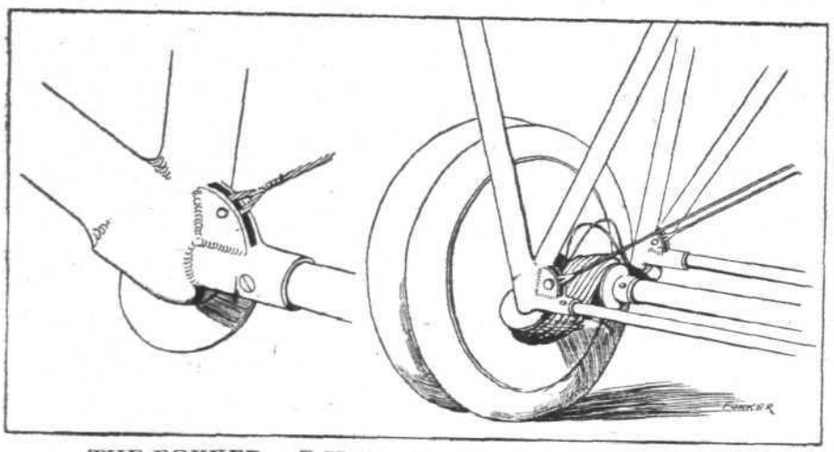
The Fokker F.II at Waddon: View of the under-carriage

pilot's cockpit, which is in front of the cabin. From the pilot's cockpit the view is fairly good, and from the cabin it is excellent in a downward direction, owing to the absence of a bottom plane. At present the front cockpit is somewhat draughty, the air swirling around in a disconcerting manner owing to the flat cabin wall behind it and the "roof" formed by the leading edge of the plane. Probably a suitably designed windscreen will overcome this difficulty.

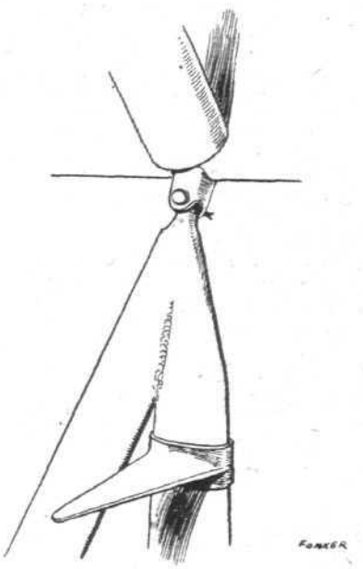
The engine fitted in the present machine is a 185 h.p. B.M.W. (Bavarian Motor Works), but the second machine will be fitted with a Siddeley "Puma," which is expected to give the machine a better performance. At present the maximum speed is about 90 m.p.h., with a cruising speed



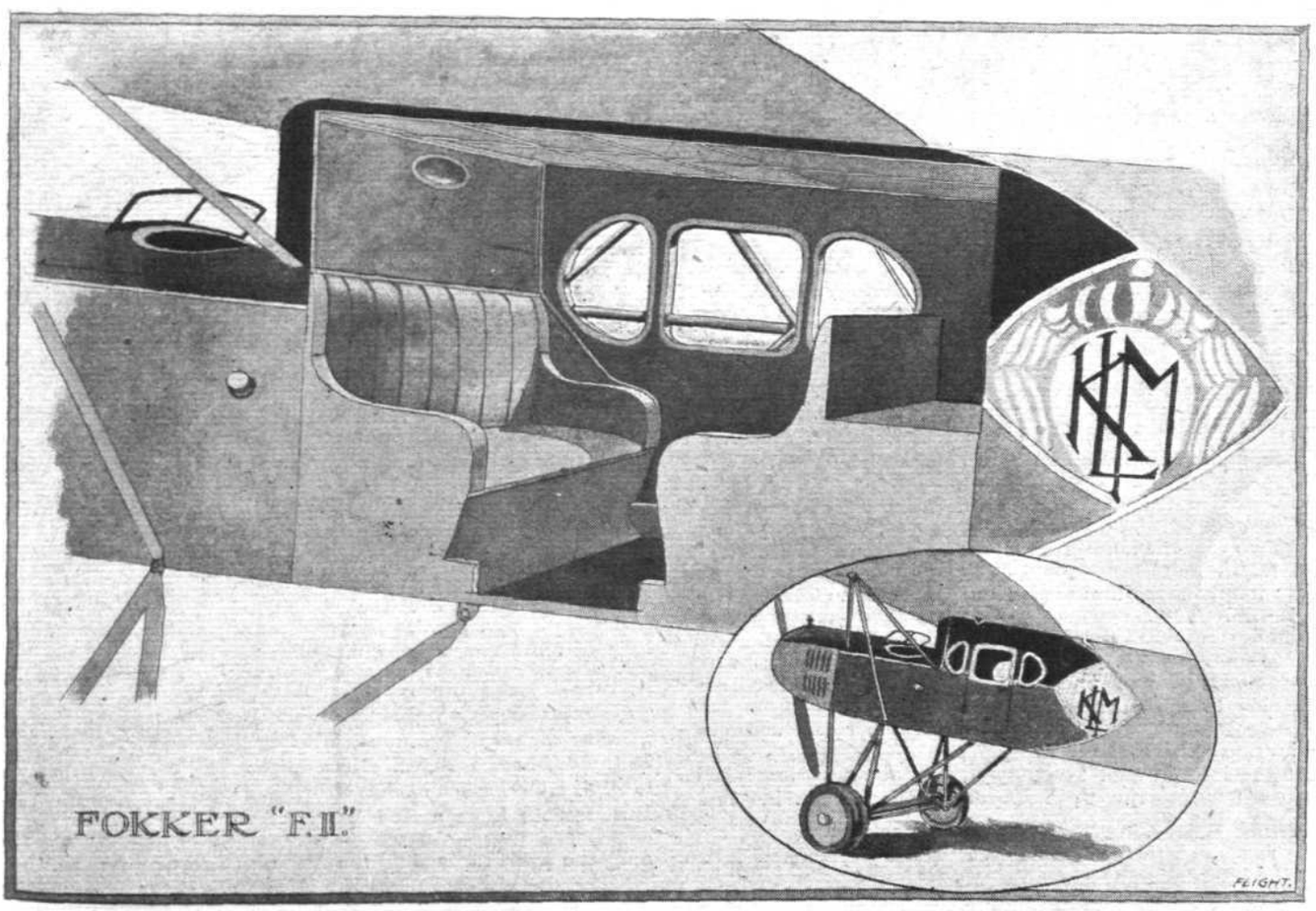
THE FOKKER "F.II": The wings are attached to the body by four bolts only, two at the top of the struts and two on the top *longerons* of the *fuselage*



THE FOKKER "F.II": Details of the undercarriage



The Fokker "F.II": Sketch showing the ball-and-socket joint of undercarriage strut to lower *longeron*



THE FOKKER "F.II" AT WADDON: View of the cabin arrangement

of about 75 m.p.h. The landing speed is very low, and the machine appears to have a very excellent gliding angle. The weight empty but with water is 1,200 kilos., and the useful load 700 kilos., quite a good figure for a machine of this type. The tank capacity is such as to give the machine an endurance of 10 hours at cruising speed, with which amount of fuel there will still be sufficient disposable lift to carry pilot and four passengers. Although slow, the machine will thus be seen to have distinct commercial possibilities on routes where maximum speed is not essential, and the construction of the machine is such that it should be cheap, not only in first cost but also in upkeep. On the flight from Amsterdam the other day—which, as already mentioned, was accomplished in three hours—the fuel consumed amounted to less than 30 galls., so that the fuel cost for the trip was about £6. This is by no means high, on the contrary, and appears to promise well for the use of the machines on the London–Amsterdam service.

ROYAL AERONAUTICAL SOCIETY NOTICES

Lectures.—Sir Humphrey Rolleston, K.C.B., late President of the Royal College of Medicine, will take the chair at Wing-Commander Flack's paper on "The Human Machine in Relation to Flying," on November 4.

The lecture on "Airship Mooring" will be read on December 2, by Flight-Lieut. F. L. C. Butcher.

Maj.-Gen. Sir F. H. Sykes, G.B.E., K.C.B., will read the inaugural paper of the Fifty-Sixth Session at the Royal Society of Arts, John Street, Adelphi, Thursday, October 7, at 5.30 p.m. The Postmaster-General (Right Hon. A. H. Illingworth, M.P.) will be in the chair.

At the next meeting, on October 21, two papers will be read: "A Comparison of the Flying Qualities of Single and Twin-Engined Aeroplanes," by Sqdr. Ldr. R. M. Hill, Associate Fellow; and "Night Flying," by Mr. Cecil Baker.

Air Conference.—The paper on "Technical Aspects of Service and Civil Aviation" at the Air Conference will be read on behalf of the Society by Captain F. S. Barnwell, Fellow, at 5 p.m. on the second day, Wednesday, October 13.

A very limited number of tickets for the Conference have been received from the Air Ministry, which are in the first instance being offered to Fellows of the Society. If any technical member desiring to take part in the discussion on any particular paper will apply to the Secretary, efforts will be made to arrange for a special ticket. Owing to the extremely limited accommodation which is understood to be available, it is feared that it will be impossible to obtain tickets for any members other than those intending to speak.

Library.—The following books have recently been received and placed in the library: "The Medical Aspects of Flying" (Medical Research Council); "Meteorology," R. G. K. Lempfert.

The copy of the First Annual Report of the Society, 1866, which it was announced some weeks ago had been presented to the Society for disposal, has now been sold.

W. LOCKWOOD MARSH,
Secretary.

Personals

Married

G. F. CASWELL, late Capt., R.A.F., was married on September 25 at Egham Parish Church, to MAY, daughter of Mr. and Mrs. G. EDWARDS, of 180, Piccadilly, and Cheniston, Egham.

Flt. Lieut. T. J. THOMAS, R.A.F.M.S., the eldest son of Mr. John Thomas, Swansea, was married on September 27 at Trinity Church, Park Street, Swansea, to MARY, the only daughter of Mr. and Mrs. J. ABBOTS, Edgbaston, Birmingham.

EDWARD TRAVERS-SMITH, late H.A.C. and R.A.F., was married on September 8, at St. Mildred's Church, Lee, to MOLLIE, only daughter of Mr. and Mrs. J. E. HEATH, of Lee.

Obs. Officer M. J. WYATT, M.C., R.A.F., was married on September 2, at All Saints' Church, Cairo, to VALERIE, elder daughter of Mr. and Mrs. E. G. R. RICHARDS, Newport, Mon.

To be Married

The engagement is announced between Capt. WEDGWOOD BENN, D.S.O., D.F.C., M.P. for Leith, and Miss MARGARET HOLMES, daughter of Mr. D. T. Holmes, formerly M.P. for Govan, and a granddaughter of Provost Eadie, of Paisley.

The engagement is announced between Flt. Lieut. L. G. LE BLOUNT CROKE, R.A.F., Fort Grange, Gosport, and PHYLLIS MARY, elder daughter of Major and Mrs. GEORGE CHURCHER, Woodcote, Alverstoke, Hants.

The engagement is announced between Squad. Leader GEORGE BENTLEY DACRE, D.S.O., R.A.F., second son of Mr. and Mrs. John Dacre, Eaton Crescent, Clifton, and Miss ELIZABETH FRANCES FRASER, daughter of Mr. and Mrs. W. P. Fraser, Johannesburg, South Africa, and niece of Mrs. Capper Pass, of Charmouth, Dorset.

The engagement is announced between GEORGE SAMUEL SANSOM, B.Sc., M.C., D.F.C., only son of the late Samuel George Claydon Sansom and Mrs. Sansom, of Ravenswood, Horsted Keynes, and DOROTHY VIVIEN, youngest daughter of the Rev. FRANCIS VIVIAN DODGSON, M.A., and Mrs. DODGSON, of Sunny Cliff, Mortehoe, N. Devon, and granddaughter of the late General Sir David Scott Dodgson, K.C.B.

The engagement is announced between Capt. A. B. YUILLE, D.F.C., elder son of Mr. and Mrs. Herbert Yuille, of Harescombe, Northwood, Middlesex, and AUDREY VIOLET, elder daughter of Lieut.-Col. and Mrs. WILLIAM MERRICK, of 22, Sheen Gate Gardens, East Sheen, S.W.

A German Transatlantic Flight

Two of the best-known German pilots, Capt. Hesse and Lieut. Lehmann, intend to attempt a Transatlantic air flight about the middle of this month, reports a correspondent in Berlin. Their machine, which has been constructed by the Zeppelin Co., is an aluminium and steel monoplane, with a total seating capacity for 18 passengers in addition to two pilots and two mechanics, but on this occasion the airmen will only take with them another pilot and a few mechanics.

The aeroplane, which has four 250 h.p. motors, is expected to develop a speed of 300 kilometres an hour, and it is hoped that the journey will be completed in about 36 hrs. It is proposed to give the engines a continuous test for six days.

German Prizes for Touring Machines

THE Deutsche Luftfahrer Verbandes has offered prizes for the best design of a small single-seater aeroplane, suitable for touring and pleasure purposes. The motive power is not to exceed 10 h.p. A series of prizes are to be offered beginning with 5,000 and 10,000 marks for the most practical idea. Further prizes from 20,000 to 50,000 marks are to be offered until a perfect machine is obtained.

A German-Swiss Service

AN air mail is very shortly to be inaugurated between Bâle and Frankfort-on-Main. The mail will leave the aerodrome at Sternenfeld near Bâle at 8.30 a.m. each day, and there is to be a connection between Frankfort and Carlsruhe. The Swiss postal authorities are to pay the German authorities at the rate of 20 marks per 100 letter cards in addition to the ordinary postage. Newspapers will be carried at the rate of 8 marks per kg. (over 2 lbs.).

Bolshevists Lose a Seaplane

BOLSHEVIST seaplanes on September 29 bombed Resht, and one crashed behind the Persian Cossack lines. This machine, according to *The Times* correspondent at Teheran, which is of an antiquated type, is the first aircraft to have passed into the possession of the Persians.

FLIGHT



M. SADI LECOINTE, as a result of his piloting of the winning machine in the Gordon-Bennett Trophy race, has been "bagged" for America by Mr. Cox, whose "Wildcat" was an unsuccessful candidate in the race. M. Lecointe is credited with a "princely salary", and will seek fame by exhibitions at aerodromes in the States. Incidentally no doubt he will be retained to fly in the contest for the Cox Trophy, which, through its President, is to be in charge of the Texas Aero Club.

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FOLLOWING the example of the Allies during the War, Poland is making good use of aeroplanes for propaganda work amongst the Bolshies. In connection with the big advances which the Poles have made and the taking of Grodno, Polish aeroplanes have been flying over the Bolshevist lines and distributed large quantities of "prisoners' passes," telling the Red Army men that if they come over with these slips of paper they will be well received and well fed. These "prisoners' passes" have been a great success.

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QUITE a little fuss is being made about pigs being now able to fly, a brace of these very useful beasties having the other day been carried over from London to Paris by the air-route. It was hardly to be expected that so long a period would be allowed to elapse after flying for man was made possible, before the old adage was rendered a back number. And, therefore, for the sake of accuracy, it should be noted that pigs *did* fly long ago in the very earliest days of aviation—and at Eastchurch. If you don't believe it, ask Lieut.-Col. Moore-Brabazon, M.P., and then check it by the files of FLIGHT.

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SWEDISH air-post provisional stamps have been issued for the recently-started air mail service on September 18, consisting of three values of the now obsolete official stamps of 1910-11, overprinted "Luftpost" in a semi-circle of heavy blue capitals, and surcharged with new values in the same colour—viz., "10" on 3 öre brown; "20" on 2 öre orange, and "50" on 4 öre lilac.

Other values are quite likely to be issued later on. The Swedish post office accepts letters and postcards for transit by air mail provided that they are prepaid with the ordinary postage, and (if required) registration fee, plus the following rates for air transit:—

Letters and printed matter (weight 20 gr.): To Germany, Switzerland, and other countries in Europe not specified below, 20 öre; postcards, 10 öre. To Holland, Belgium, France, Spain and Portugal, 40 öre; postcards, 20 öre. To England, U.S.A., and countries which are mailed *via* England 60 öre; postcards, 30 öre.

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THE prediction that aeroplanes would be largely availed of by owners of agricultural and pastoral properties in the Western Districts of Queensland, is already coming true. A station owner, Mr. T. Behan, of Garfield Station, near Jericho, is reported to have purchased a machine for use in working his pastoral properties, and to keep in touch with his Bilbah Downs, in the Isisford district. The Central Queensland Graziers' Association is also purchasing an Avro 3-seater for organising purposes. It is suggested that these will be the forerunners of others, and that a company will be promoted to supply machines.

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CORNWALL is the latest direction in which the aeroplane may help the fishing industry. The Cornwall Sea Fisheries Committee is to consider at its next meeting a proposal to employ aircraft in locating shoals of fish for the benefit of the county's fishermen.

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VERY interesting was the report of aviation progress and prospects in the doings at the Peking Syndicate, Ltd., general meeting the other day. The Chairman said that at the last meeting he announced that the company had been appointed agents for several well-known firms, such as Handley Page, Ltd., Marconi Co. and Siemens. Since then they had sold to the Chinese Government six large Handley Page machines. They had also placed orders since then for a few smaller machines for training purposes. An aviation school had been started a few miles outside Peking, with Handley Page representatives in charge. The Chinese, he said, took very kindly to aviation, and would make excellent pilots. Commercial aviation in China was feasible. The greatest drawback to China at present was lack of communication, and anything that tended to improve that position was of the greatest assistance to her. In countries like England and America, where the roads and railways were good and allowed of rapid communication, commercial aviation had to face serious competition, but in China, where distances were great and roads and railways practically did not exist, and even on the inadequate railway system the fastest train only averaged 25 m.p.h., aviation had more than a chance. In his opinion, there was a big field there for British manufacturers, but there was serious competition to be faced from other nations who recognised the position, and while British manufacturers were being cramped by our own authorities on the ground that the machines wanted by the Chinese Government were for military use, and, therefore, under the agreement between the Powers such material must not be supplied, other nations took a less strict view, and, in his opinion, very rightly so. Aeroplanes without guns were no more war material than horses which might be used for cavalry or other purposes. Their use for passenger and mail carrying was proved by the company in May last, when they made the first passenger and mail trip from Peking to Tientsin and back, and had the honour of carrying His Majesty's Minister, Sir Beilby Alston, the British Commercial Attaché, Mr. Archibald Rose, and some leading business men in Peking, fifteen passengers in all. Sir Beilby was the first Minister to fly in China, and well deserved all the credit they could give him for his enterprise, which gave the Chinese the proof necessary of the belief the British had in the reliability of their machines.

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FROM the above it emerges that there seems to be a difference of opinion in regard to the indiscriminate supply to China of machines. This is a difference which should be settled diplomatically without delay if British constructors are not to be at a disadvantage by reason of their over scrupulousness. Mr. Barson, the Chairman of the Peking Co., is undoubtedly right when he foretells great developments in China, and to this end he further announced at the same meeting that they intended, with the object of improving that trading business, to form a separate company co-operating with the Chinese, to be managed in China.

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HAVING regard to old traditions, it would appear to be singularly appropriate that Professor Maxwell Lefroy made his statement at Margate the other day to the Annual Conference of the Sanitary Inspectors' Association in regard to "Insect Enemies of Man." It was the same suggestion again as to trouble *via* the air. Professor Lefroy's reference was to what he termed the menace of man's dispersal of insect pests as a result of aerial communication with distant lands. We did not, for instance, he said want cholera brought direct from Africa to an aerodrome outside London at a time when there were abundant flies to spread infection; nor did we want an airman from, say, Holland to come with a fur-coat full of typhus-infected lice. One of the worst disease-carriers of the tropics, not normally found in England, was reported breeding near a London aerodrome last year. Another phase was the use of insects in warfare. In order to spread cholera, it was not necessary to poison wells. Releasing flies fed on a culture would spread the infection. It would be easy for the agent of a country hostile to us to liberate thousands of disease-carrying flies at a time when our own flies were abundant. One continental country would hesitate to infect another for fear of the plague spreading back to themselves, but with an island like ours, or with a continent vast as America, the use of this weapon was obvious.

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WHICH all makes for quite a pleasant outlook. War through the Air, with a Vengeance!

THE ROYAL AIR FORCE

London Gazette, September

Technical Branch

Flight Lieut. (actg. Squdn. Leader) G. Somers-Clarke, O.B.E., relinquishes the actg. rank of Squdn. Leader on ceasing to be employed as Squadn. Leader; May 17.

Lieut. H. Forrest to be Lieut., Grade (B), from (A.); Dec. 5, 1918 (substituted for *Gazette*, Feb. 28, 1919).

Transferred to Unemployed List.—Lieut. E. T. L. Jones; May 21, 1919. Sec. Lieut. E. Barker; Sept. 17, 1919 (substituted for *Gazette*, Sept. 30, 1919). Sec. Lieut. R. C. Hill; Jan. 1.

Lieut. H. V. Page (Lieut., Gen. List) relinquishes his temp. R.A.F. commn. on retirement from the Army, and is permitted to retain his rank; Sept. 25.

The surname of Lieut. W. C. Ibbott (Lieut., Gen. List) is as now described, and not as stated in the *Gazette* of Sept. 17.

The notifications in the *Gazettes* of Feb. 13, April 6, Aug. 3, and Aug. 13 concerning Sec. Lieut. R. C. Hill are cancelled.

Memoranda

Hon. Col. J. D. Cormack relinquishes his hon. R.A.F. commn. on ceasing to be employed, and is granted the hon. rank of Brig.-Gen.; July 31, 1919.

London Gazette, September 28

Permanent Commissions

Lieut the Hon. M. H. R. Knatchbull-Hugessen is placed on the retired list on account of ill-health contracted on active service, and is granted rank of Capt.; Oct. 1.

Flying Branch

Pilot Officer N. Fielden to be Flying Officer; March 30.

Sec. Lieut. E. L. Roberts (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lieut. (A); July 30, 1918 (substituted for *Gazette*, Dec. 13, 1918).

Lieut. H. V. L. Tubbs relinquishes his R.A.F. commn. on appt. to the T.F., and is permitted to retain his rank (*Gazette* Feb. 7, 1919, to stand).

The following Sec. Lieuts. (Hon. Lieuts.) relinquish their R.A.F. commns. on appointment to the T.F., and are permitted to retain rank of Lieut.:—P. Pyne (*Gazette* June 24, 1919, to stand); A. Smith; July 22 (*Gazette* Oct. 3, 1919, to stand). Lieut. A. V. Dufton relinquishes his commn. on ceasing to be employed; May 7, 1918.

Transferred to Unemployed List.—Sec. Lieut. H. J. Dyer; July 31, 1919. Sec. Lieut. O. Rees; Oct. 24, 1919. Sec. Lieut. G. Le F. Lalonde; May 29 (substituted for *Gazette*, June 4). Maj. K. R. Van Der Spuy, M.C.; Sept. 26.

The Christian names of Flying Officer Samuel Marcus Kinkead, D.S.O., D.S.C., D.F.C., are as now described, and not as stated in the *Gazette* of Aug. 24.

Administrative Branch

Sec. Lieuts. to be Lieuts.—A. T. Hughes; April 2, 1918. B. P. Jones (since demobilised); Sept. 4, 1918).

Flying Officer J. M. J. C. J. Rock is placed on the half-pay list (Slace B); Sept. 27. Lieut. L. B. Gately is transferred to unemployed list; June 2, 1919. Lieut. F. St. K. Anderson relinquishes his temp. R.A.F. commn. (*Gazette*, Feb. 10, to stand).

Technical Branch

Sec. Lieut. P. G. May to be Lieut. (Grade A); May 13, 1919 (since demobilised).

Lieut.-Col. (actg. Brig.-Gen.) J. G. Weir, C.M.G., relinquishes his R.A.F. commn. on appointment to the T.F., and is granted the hon. rank of Brig.-Gen. (*Gazette*, April 1, 1919, to stand).

Lieut. J. Butcher relinquishes his R.A.F. commn. on appointment to the T.F., and is permitted to retain his rank (*Gazette*, Mar. 11, 1919, to stand).

Sec. Lieut. (Hon. Lieut.) A. J. Newling relinquishes his R.A.F. commn. on appointment to the T.F., and is permitted to retain the rank of Lieut. (*Gazette*, April 29, 1919, to stand).

Memoranda

(Then follow the names of 22 Cadets who are granted hon. commns. as Sec. Lieuts.).

Hon. Sec. Lieut. A. M. Cave relinquishes his hon. R.A.F. commn.; April 7, 1919. Sec. Lieut. R. N. Tomkins relinquishes his R.A.F. commn.; Sept. 21.

London Gazette, October 1

Permanent Commissions

The following officers resign their permanent commns. and are permitted to retain the rank of Flight Lieutenant:—Flying Officer M. H. Findlay, D.S.C., D.F.C., Flying Officer F. R. Hockey; Oct. 1.

The initials of Flying Officer K. A. Lister-Kaye (A.) are as now described, and not as in *Gazette*, Aug. 1, 1919.

The name of Flt. Lt. George Brindley Aufrere Baker, M.C. (A.), is as now described, and not as in *Gazette*, Oct. 28, 1919.

The name of Flying Officer G. C. Gardner, D.F.C. (A.), is as now described, and not as in *Gazette*, Aug. 1, 1919.

Short Service Commissions

The following officers are granted short service commns. in the ranks stated, with effect from the dates indicated, retaining their seniority in the substantive rank last held by them prior to the grant of this commn., except where otherwise stated:—

Flight Lieutenants.—D. L. Blackford; Sept. 13. A. W. Clemson, D.S.C.; Aug. 18. H. J. Roach, A.F.C.; Sept. 22.

Flying Officer (from Flight Lieutenant).—G. H. D. Gossip; Sept. 14.

Flying Officers.—A. N. Appleford; Sept. 20. W. R. K. Atkinson; Sept. 21. H. W. Baggs; Sept. 14. F. H. Barton; Sept. 28. C. H. Bird, Sept. 15 F. E. Bond; Sept. 27. K. L. Boswell; Sept. 14. C. F. Briggs; Sept. 20. J. C. Burney-Cumming; Sept. 25. C. G. Gilbert; Sept. 16. H. A. Hammersley, M.C.; Sept. 20. E. Jackson; Sept. 28. W. T. Lewis; Sept. 17. V. S. Parker; Sept. 28. F. L. Pearce; Sept. 15. W. B. E. Powell; Sept. 13. A. J. Rankin; Sept. 27. H. B. Richardson, M.C.; Sept. 23. I. C. G. Simpson; Sept. 28. C. R. Smythe; Sept. 16. C. D. Spiers; Sept. 13. L. G. Spinney; Sept. 13. W. E. Swann; Sept. 25.

Flying Officers (from Pilot Officers), with Seniority of the Dates Indicated.—C. W. S. Chalmers; Sept. 20. H. Macmillan; Sept. 27. A. C. Meredith; Sept. 22. S. A. C. Newnham; Sept. 20. R. H. Rose; Sept. 20.

NOTE.—Flying Officer Gossip will be placed at the head of the list of Flying and Observing Officers, and will retain seniority relative to officers who have been similarly gazetted to short service commns. in a rank lower than their previous substantive rank in accordance with his previous position on the gradation list.

Flying Officer J. E. C. Hammond resigns his short service commn., and is permitted to retain his rank; June 20.

Observer Officer G. L. Nicholson resigns his short service commn., and is permitted to retain his rank; Oct. 1.

The second Christian name of Flying Officer William Whitefield McConnachie is as now described, not Whitehead, as stated in *Gazette*, Sept. 12, 1919.

THE LONDON-CONTINENTAL SERVICES

FLIGHTS BETWEEN SEPTEMBER 26 AND OCTOBER 2, INCLUSIVE

Route	No. of flights*	No. of passengers	No. of flights carrying: Mails	No. of flights carrying: Goods	No. of journeys completed†	Average flying time	Fastest time made by	Type and No. (in brackets) of Machines Flying
						h. m.		
Croydon-Paris	31	52	13	20	31	3 43	Airco 18a G-EARO (2h. 5m.)	A.9 (5), A.16 (3), A.18 (2), B. (2), G. (3), N. (1), Sp. (1), V. (1), W. (2).
Paris-Croydon	31	39	6	15	27	2 11	Airco 16 G-EAQS (1h. 40m.)	A.9 (4), A.16 (3), A.18 (2), B. (3), G. (2), N. (3), Sp. (1), V. (1), W. (2).
Cricklewood-Paris ...	7	37	1	6	7	3 49	H.P. G-EATN (3h. 10m.) ...	H.P. (7).
Paris-Cricklewood ...	9	40	—	3	9	3 7	H.P. G-EATN (2h. 27m.) ...	H.P. (8).
Croydon-Amsterdam ...	6	1	—	6	6	3 59	Airco 16 G-EAPT (1h. 55m.)	A.9 (1), A.16 (2).
Amsterdam-Croydon ...	6	8	5	4	5	3 39	Airco 16 G-EASW (3h. 5m.)	A.9 (1), A.16 (2), F.(1).
Cricklewood-Amsterdam	4	1	2	2	3	?	?	A.4 (1), A.9 (2).
Amsterdam-Cricklewood	6	5	5	3	6	3 55	Airco 4 G-EAVL (2h. 48m.)	A.4 (1), A.9 (2).
Croydon-Brussels ...	—	—	—	—	—	—	—	—
Brussels-Croydon ...	—	—	—	—	—	—	—	—
Cricklewood-Brussels ...	8	11	6	6	5	2 53	Airco 9 G-EAUN (2h. 35m.)	A.4 (2), A.9 (3), H.P. (1).
Brussels-Cricklewood ...	6	4	2	1	5	2 31	Airco 9 G-EATA (2h. 23m.)	A.4 (1), A.9 (2), H.P. (1).
Totals for week ...	114	198	40	66	104			

* Not including "private" flights. † Including certain journeys when stops were made *en route*.

A.4 = Airco 4. A.9 = Airco 9 (etc.). B. = Breguet. F. = Fokker. G. = Goliath Farman. H.P. = Handley Page. N. = Nieuport. Sa. = Salmson. Sp. = Spad. V. = Vickers Vimy. W. = Westland.

The following is a list of firms running services between London and Paris, Brussels, etc., etc.:—Air Post of Banks; Air Transport and Travel; Co. des Grandes Expresses Aériennes; Handley Page Transport, Ltd.; Instone Air Line; Koninklijkie Luchtvaart Maatschappij; Messageries Aériennes; Syndicat National pour l'Étude des Transports Aériens; Co. Transaérienne.

FLIGHT

MODEL AEROPLANES

All communications to be addressed to the Model Editor. A stamp should be enclosed for a postal reply

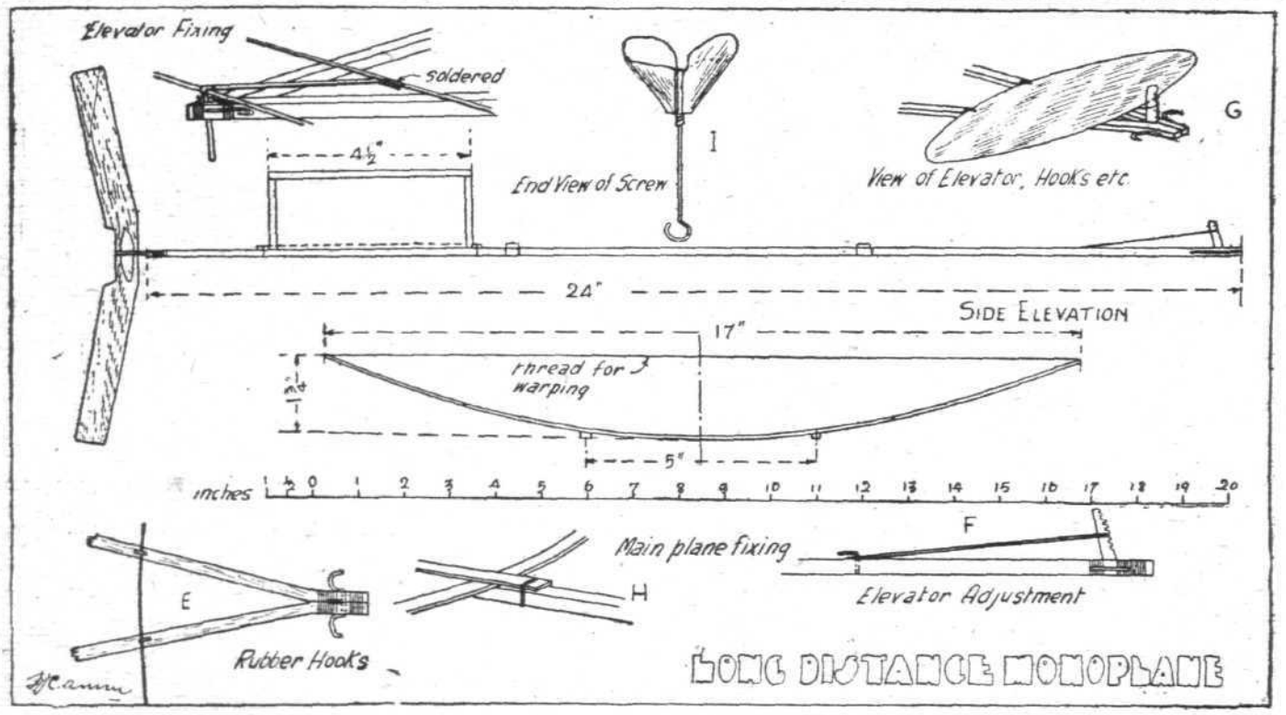
The Long-Distance Monoplane (*continued*)

The Frame.—This is cut 24¼ ins. long, $\frac{5}{16}$ in. wide, and $\frac{3}{16}$ in. deep. From a point 7 ins. from the rear end they are bent as mentioned last week. The propeller crossbar is 7¾ ins. long; two light crossbars will also be required to span the framework, from the junction of which with the *longerons* diagonal bracing passes to give strength. They are fastened by means of fishplates as shown in the accompanying drawing.

The sketch A shows the method of making and securing the bearings, whilst at B the joints between the main spars and cross-pieces are manifest. Fine strong thread is best for binding, and it should be soaked in weak glue.

The Main Plane.—The framework of the main plane is made from strips $\frac{3}{16}$ in. wide by $\frac{1}{16}$ in. thick. Two ribs shown in the drawing are cut long enough to project ½ in. on each side of the leading and trailing edges. The dihedral angle may be followed from sketch D. The curve is 1¾ ins. out of the parallel, and is effected by means of the cross-threads previously shown. Sketch H shows the method of fastening the plane to the longitudinal members of the frame.

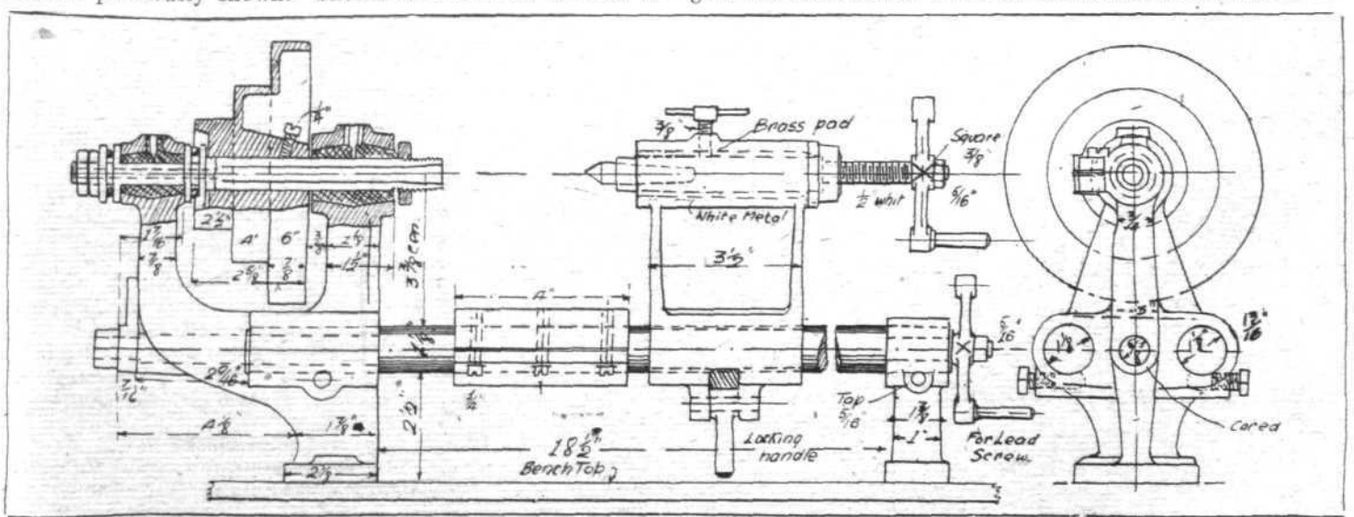
The Elevator.—Adjustment to the elevator is effected by means of a quadrant rack shown in sketches F and G. The elevator is oval in plan, and in the centre of the leading edge a loop is formed to engage with the rack, and so permit variations to the angle of incidence. The rear edge of the elevator is pivoted by means of two pins, as shown by sketches E and G.



The Propellers.—These are, of course, of right and left-hand pitch, the pitch being about 20 ins.

A Simple Bench Lathe

DRAWINGS are here given for a simple bar-bed bench-lathe which might be easily and cheaply constructed for model engine work. Many are precluded from making compressed-air and other plants owing to lack of a lathe for turning. The one here illustrated has for its bed ordinary bright-drawn mild steel shafting, which is sufficiently accurate not to need further machining. I shall be pleased to give further details of this if sufficient interest is evinced.



Disaster on Disaster

AN aeroplane manned by Capt. Stutt and Sergt. Dalgeel, which left Melbourne on September 25 in search of a schooner which had disappeared off the coast of Tasmania, has been reported missing.

To Timbuctoo by Air

IT will soon be a comparatively easy matter to get to Timbuctoo, as a French syndicate has been formed with the object of organising aerial services in North Africa. Three lines are proposed, the main objective being the Gulf of Guinea and starting from Oran or Algiers, the route would be either Bourem–Ouaghadougon–Lommé or Sikasso–Bingerville. The second line, the Senegal–Tschad service, will start from Dakar and fly *via* Bamako–Timbuctoo and Zinder, with a probable extension to Brazzaville. The third line, the Tunis-Senegal service, will start from Tunis and skirt the Mediterranean coast *via* Algiers, Oran and Casablanca, and along the Atlantic coast to Dakar. Later on a dirigible service may be started from Orly, calling at Marseilles and then proceeding to Algiers and Morocco.

Business Flying in South America

A PRACTICAL demonstration of the use of aircraft in South America was the trip from Buenos Aires to Porto Alegre and back by Mr. L. H. Kiek, the London general manager of the Anglo-South American Bank. Piloted by Maj. Shirley Kingsley of the River Plate Aviation Co., Mr. Kiek visited branch banks at Montevideo, Rio Grande, Pelotas and Santa Anna, the round trip of 1,250 miles being covered in 10 days, including halts for business, as against the 20 days which would have been required by rail and steamer. The outward journey from Buenos Aires to Porto Alegre was completed in 6 hrs. 5 min. flying time. On some of the stages Mr. Kiek was accompanied by local bankers.

A German-Austrian Air Service

MESSAGES from Vienna suggest that shortly the German and Austrian capitals may be linked up by air, the services to be run by the North-German Lloyd airship pool and the Vienna Society for Aerial Traffic. The pool includes the Albatros Co., of Berlin, the Badische Luftverkehr, of Baden, the Bavarian Rumpler Werke, of Augsburg and Berlin, the Hanoverian Waggonfabrik, Wollers of Dessau, Lloyd Luftdienst, of Bremen, the Sablatnig, of Berlin, and the Viennese Flugverkehrs-Gesellschaft, of Vienna. Two routes are proposed—one by Nuremburg, 730 kiloms., taking 4½ to 5 hours; and the other *via* Munich, 850 kiloms., taking 5½ hours. It is hoped that an agreement with Czecho-Slovakia will be arrived at soon which will permit of the journey being made *via* Prague in from 3 to 3½ hours. Connections with Italy (Milan) and the Balkans are under consideration.

The fare between Vienna and Berlin has been fixed at 2,500 marks more than three times the railway fare.

A German Commercial Airship Station

IT appears from messages from Berlin that the airships which are to carry on the proposed Transatlantic Service are to be accommodated in the Isle of Norderney off the coast of Prussia. One of the chief reasons for selecting Norderney is that it is convenient of access to the huge international aerodrome projected for Bremen, the distance of 80 miles bringing it well within one hour's time of that air port by aeroplane service. Five hundred workmen are to be employed for a period of six months in preparing the Bremen aerodrome, and the German Government has already signified its desire to co-operate by offering a certain proportion of the official out-of-work funds towards wages with a view to secure useful work for the unemployed.

American Built Zeppelins

THE latest version of the story with regard to the American Syndicate and Zeppelins is that the former has decided to take to the United States the construction of dirigibles, which has been forbidden in Germany by the Versailles Treaty. If the scheme goes through the first work will be to build a "giant" rigid for the proposed Transatlantic service.

PUBLICATIONS RECEIVED

Medical Research Council, Report No. 53. The Medical Problems of Flying. H.M. Stationary Office, London, W.C. 2.

The London School of Economics and Political Science. Calendar, 1920-1921. The London School of Economics, Clare Market, Portugal Street, Kingsway, W.C. 2. Price 2*s.* 6*d.* By post 3*s.*

Catalogue

Motor Accessories. S. Smith and Sons (Motor Accessories), Ltd., 179–185, Great Portland Street, London, W. 1.

COMPANY MATTERS

Fellows Magneto Co., Ltd.

THE directors have decided to declare an interim half-yearly dividend at the rate of 25 per cent. per annum (less tax) on the ordinary shares of the company for the period of six months ending June 30, 1920. This dividend will be paid on November 15, 1920, on all fully-paid ordinary shares of the company ranking for dividend on June 30, 1920.

NEW COMPANIES REGISTERED

DE HAVILLAND AIRCRAFT CO., LTD.—Capital £50,000, in £1 shares. First directors: Geoffrey de Havilland, A. E. Turner and C. C. Walker. Solicitors: A. J. Greenop and Co., Bush Lane House, Cannon Street, E.C.

GREEN'S PATENT CO., LTD.—Capital £5,000, in £1 shares (2,500 "A" and 2,500 "B"). Manufacturers of and dealers in celluloid, aeroplane dope, films, and other articles and substances made out of cellulose dope, etc. Under agreements (1) with R. Green and (2) with the Triplex Safety Glass Co., Ltd. First directors: F. W. Kerr, P. J. Mitchell, and R. Green. Solicitors: W. A. Ward-Jones, 40, King Street, Cheapside, E.C.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m. = motors.

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1918

Published October 7, 1920

8,141. C. H. J. MACKENZIE-KENNEDY and T. W. K. CLARKE. Bracing-wire connections. (150,753.)

APPLIED FOR IN 1919

Published October 7, 1920

11,354. M. T. PETCH. Aeroplanes specially designed for long-distance flights. (150,769.)
14,051. D. J. MOONEY. Metal members for aircraft. (150,783.)
14,681. H. SCOTT-PAINE and SUPERMARINE AVIATION WORKS, LTD. Flying boats. (150,823.)
14,933. J. PALETHORPE and W. S. SMITH. Tail-skids. (150,830.)
15,031. ARMSTRONG-SIDDELEY MOTORS, LTD., and J. LLOYD. Control mechanism of balancing flaps. (150,832.)
15,305. A. B. DAILEY. Gauge for testing wire tension. (150,839.)
15,443. M. PARSONS and R. WELLESLEY. Inclinometers. (150,843.)
16,287. D. J. MOONEY and F. B. UNDERWOOD. Metal aircraft fittings. (150,855.)
16,369. H. F. RAE. Flying boat. (150,858.)
20,936. BLACKBURN AEROPLANE AND MOTOR CO., C. LUMLEY and B. FLINTON. Tension members for aircraft. (150,899.)
21,103. C. L. BASHAM. Parachute. (150,900.)
28,680. H. R. M. BROOK-POPHAM and P. WORTHINGTON. Inflation of non-rigid aerostats. (150,922.)

APPLIED FOR IN 1920

Published October 7, 1920

13,329. P. B. VAN LEGGELO. Parachute devices for helicopters. (143,256.)

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